

কলিকাতা বিশ্ববিদ্যালয়

পাঠক্রমের পুনর্বিন্যাস

২০১০

বাংলা (সাম্মানিক ও সাধারণ) পার্ট-ওয়ান, পার্ট-টু এবং
পার্ট-থ্রি-র জন্য পাঠ্যসূচি

- ১। প্রকাশিত বর্তমান পাঠ্যসূচিতে যেভাবে নম্বর ভাগ করা হয়েছে তা অনুসরণ করতে হবে।
- ২। পাঠ্যতালিকা বহির্ভূত প্রশ্ন কোনোভাবেই করা চলবে না। এ বিষয়ে সতর্কতা বিশেষভাবে কাম্য।
- ৩। প্রত্যেক পত্রে বড় বা রচনাধর্মী প্রশ্ন নানা মানের থাকবে এবং প্রয়োজনে দুটি, তিনটি বা চারটি অন্তর্বিভাগ থাকতে পারে।
- ৪। প্রত্যেক পত্রে বিষয় অনুযায়ী ৪ ও ৫ নম্বর মানের ছোট প্রশ্ন থাকবে। এক্ষেত্রে প্রধানত প্রশ্নের উৎস ও প্রশ্ন উল্লেখসহ তাৎপর্যধর্মী উত্তর অভিপ্রেত।
- ৫। পাঠ্য রচনা থেকে উদ্ধৃতিসহ প্রশ্ন যেমন থাকবে তেমনি তুলনামূলক, আলোচনাধর্মী প্রশ্নও রাখা বাঞ্ছনীয়। উদ্ধৃতি অবশ্যই বিশ্ববিদ্যালয় নির্ধারিত পাঠ্যগ্রন্থ থেকে গ্রহণীয়।
- ৬। টীকা অথবা ব্যাখ্যামূলক চার নম্বরের ছোট প্রশ্নের জন্য কমবেশি ৭৫ শব্দ ও পাঁচ নম্বরের ছোট প্রশ্নের জন্য কমবেশি ১০০ শব্দ, দশ নম্বরের মাঝারি প্রশ্নের জন্য ২০০ শব্দ, পনেরো বা ষোল নম্বরের বড়ো প্রশ্নের জন্য ৩০০ শব্দ, এবং কুড়ি নম্বরের প্রশ্নের জন্য ৩৫০ শব্দের আয়তন আদর্শ বিবেচিত হতে পারে।

বাংলা (সাম্মানিক)

পার্ট-১

প্রথম পত্র-১০০

ক। বাংলা সাহিত্যের ইতিহাস

মোট নম্বর ৭৫

মডিউল-১ : প্রাচীন ও মধ্যযুগ :

২৫ (১৫ + ৫ + ৫)

ভূমিকা : আর্থ-সামাজিক ও রাজনৈতিক পটভূমিকায় বাংলার জাতি, ভাষা, সাহিত্য ও সংস্কৃতির সংক্ষিপ্ত পরিচয়।

চর্যাপদ [দেশ-কাল-সমাজ-ভাষা-সাহিত্য-সংস্কৃতির চিত্র]

তুর্কি আক্রমণ ও তার প্রতিক্রিয়া [সমাজ ও সাহিত্যে]

বড়ু চণ্ডীদাস ও শ্রীকৃষ্ণকীর্তন

অনুবাদ সাহিত্য : ভাগবত, রামায়ণ ও মহাভারত।

চৈতন্যজীবন ও জীবনী সাহিত্য : চৈতন্য জীবনকথা, সাহিত্য ও সমাজে চৈতন্য প্রভাব, জীবনী সাহিত্য। বিশেষ গুরুত্বসহ পাঠ: বৃন্দাবন দাস, কৃষ্ণদাস কবিরাজ।

মঙ্গলকাব্যের উদ্ভব ও বিবর্তন : সংজ্ঞা, বৈশিষ্ট্য, সমাজ : মনসামঙ্গল চণ্ডীমঙ্গল ধর্মমঙ্গল শিবায়ন ও অন্নদামঙ্গল। বিশেষ গুরুত্বসহ পাঠ: বিজয়গুপ্ত, কেতকাদাস ফেমানন্দ, দ্বিজ মাধব, ঘনরাম চক্রবর্তী, রামেশ্বর ভট্টাচার্য, রায়গুণাকর ভারতচন্দ্র।

প্রণয়োপাখ্যান : শাহ মুহম্মদ সগীর, দৌলত কাজী, আলাওল।

আধুনিক যুগ : [১৯৬০ পর্যন্ত]

২৫ + ২৫

মডিউল-২ : আধুনিক যুগের গদ্য ও প্রবন্ধ, সাময়িক পত্র, কাব্য ও কবিতা

২৫ (১৫ + ৫ + ৫)

উনিশ-বিশ শতকের আর্থ-সামাজিক পটভূমি।

গদ্য ও প্রবন্ধ : বাংলা গদ্যভাষা ও সাহিত্যের বিকাশে শ্রীরামপুর মিশন ও ফোর্ট উইলিয়াম কলেজের ভূমিকা, রাজা রামমোহন রায়, ঈশ্বরচন্দ্র বিদ্যাসাগর, অক্ষয়কুমার দত্ত, প্যারীচাঁদ মিত্র, কালীপ্রসন্ন সিংহ, বঙ্কিমচন্দ্র চট্টোপাধ্যায়, মীর মসাররফ হোসেন, রবীন্দ্রনাথ ঠাকুর, স্বামী বিবেকানন্দ, রামেন্দ্রসুন্দর ত্রিবেদী, অবনীন্দ্রনাথ ঠাকুর, প্রমথ চৌধুরী, গোপাল হালদার, বুদ্ধদেব বসু-র অবদান।

সাময়িক পত্র : আবির্ভাব, পরিচিতি, অবদান, দিগ্‌দর্শন থেকে কৃষ্টিবাস। বিশেষ অভিনিবেশ সহ পাঠ : সমাচার দর্পণ, সংবাদ প্রভাকর, তত্ত্ববোধিনী পত্রিকা, বঙ্গদর্শন, ভারতী, সবুজপত্র, কল্লোল, শনিবারের চিঠি, পরিচয়, কৃষ্টিবাস।

কাব্য ও কবিতা : ঈশ্বরচন্দ্র গুপ্ত, রঙ্গলাল বন্দ্যোপাধ্যায়, মধুসূদন দত্ত, হেমচন্দ্র বন্দ্যোপাধ্যায়, নবীনচন্দ্র সেন, বিহারীলাল চক্রবর্তী, রবীন্দ্রনাথ ঠাকুর, সত্যেন্দ্রনাথ দত্ত, যতীন্দ্রনাথ সেনগুপ্ত, মোহিতলাল মজুমদার, নজরুল ইসলাম, জসীমউদ্দীন, জীবনানন্দ দাশ, সুধীন্দ্রনাথ দত্ত, প্রেমেন্দ্র মিত্র, অমিয় চক্রবর্তী, বিষ্ণু দে, সমর সেন, সুভাষ মুখোপাধ্যায়, অরুণ মিত্র, বীরেন্দ্র চট্টোপাধ্যায়, সুকান্ত ভট্টাচার্য, নীরেন্দ্রনাথ চক্রবর্তী।

মডিউল-৩ : আধুনিক যুগের নাটক-প্রহসন, উপন্যাস ও ছোটগল্প

২৫ (১৫ + ৫ + ৫)

নাটক-প্রহসন : সূচনা, বাংলা নাটকের উদ্ভব ও বিকাশ, রামনারায়ণ তর্করত্ন, মধুসূদন দত্ত, দীনবন্ধু মিত্র, গিরিশচন্দ্র ঘোষ, দ্বিজেন্দ্রলাল রায়, রবীন্দ্রনাথ ঠাকুর, বিজ্ঞান ভট্টাচার্য, তুলসী লাহিড়ী, মন্থর রায়, দিগিন্দ্রচন্দ্র বন্দ্যোপাধ্যায়, উৎপল দত্ত।

উপন্যাস ও ছোটগল্প : উদ্ভব, বঙ্কিমচন্দ্র চট্টোপাধ্যায়, রবীন্দ্রনাথ ঠাকুর, প্রভাতকুমার মুখোপাধ্যায়, শরৎচন্দ্র চট্টোপাধ্যায়, বিভূতিভূষণ বন্দ্যোপাধ্যায়, তারাশঙ্কর বন্দ্যোপাধ্যায়, জগদীশ গুপ্ত, মানিক বন্দ্যোপাধ্যায়, পরশুরাম, প্রেমেন্দ্র মিত্র, সতীনাথ ভাদুড়ী, আশাপূর্ণা দেবী, সুবোধ ঘোষ, সোমেন চন্দ, সৈয়দ ওয়ালিউল্লাহ, সমরেশ বসু।

মডিউল-৪ : বাংলা ভাষার ইতিহাস

২৫ (১৫ + ১০)

নিম্নলিখিত বিষয় সমূহ :

- ১। প্রাচীন ভারতীয় আর্য ভাষা থেকে আধুনিক ভারতীয় আর্য ভাষার বিবর্তন।
- ২। বাংলা ভাষার উদ্ভব এবং প্রাচীন বাংলা, আদি-মধ্য ও অন্ত-মধ্য বাংলা ভাষার ভাষাতাত্ত্বিক লক্ষণ।
- ৩। ভাষা-উপভাষা, ভাষা-উপভাষার সম্পর্ক—কয়েকটি বাংলা উপভাষার বৈশিষ্ট্য।
- ৪। উচ্চারণ স্থান ও উচ্চারণ প্রকৃতি অনুযায়ী বাংলা স্বর ও ব্যঞ্জন ধ্বনিগুলির পরিচয়।
- ৫। বাংলা ভাষার ধ্বনি পরিবর্তনের রীতি ও প্রকৃতি।
- ৬। বাংলা ভাষার শব্দ ভাণ্ডার।
- ৭। শব্দ-বিবর্তন।

দ্বিতীয় পত্র-১০০

মডিউল-১ : ছন্দ

২০ (১০ + ৫ + ৫)

দল/অক্ষর। কলা/মাত্রা। যতি, যতিলোপ। পর্ব। পঙক্তি/চরণ। ছত্র। পদ। বাংলা ছন্দের ত্রিধারা—মিশ্রবৃত্ত/তান প্রধান/ অক্ষরবৃত্ত; সরল কলাবৃত্ত/ কলাবৃত্ত/ ধ্বনি প্রধান/মাত্রাবৃত্ত; দলবৃত্ত/শ্বাসাঘাত প্রধান/বলবৃত্ত/স্বরবৃত্ত/ছড়ার ছন্দ/লৌকিক ছন্দ।

(ছন্দোলিপি প্রণয়নে পর্ব, পদ, পংক্তি, লয়, রীতি ও মাত্রার উল্লেখ বাঞ্ছনীয়)। বাংলা ছন্দের কয়েকটি রূপবন্ধের পরিচয় ও উদাহরণ সহ আলোচনা (পয়ার, সনেট, অমিত্রাক্ষর, মুক্তক, গদ্যছন্দ)।

মডিউল-২: অলংকার

২৫ (১৫ + ৫ + ৫)

শব্দালঙ্কার : অনুপ্রাস, স্লেষ, যমক, বক্রোক্তি। অর্থালঙ্কার : উপমা, রূপক, সমাসোক্তি, উৎপ্রেক্ষা, অপহৃতি, দৃষ্টান্ত, ব্যতিরেক, বিরোধ, অর্থাভরণ্যাস, ব্যাজস্তুতি, (সংজ্ঞা, উদাহরণ, অলংকার নির্ণয়)।

মডিউল-৩: প্রকৃ রিডিং

৫

(দৃষ্টিহীন পরীক্ষার্থীদের জন্য বিকল্পে অণুজি সংশোধন পাঠ্য)

মডিউল-৪: বৈষ্ণব পদাবলী : (ক.বি. সংস্করণ)

১৬ (১২ + ৪)

নিম্নলিখিত পদসমূহ :

১) নীরদনয়নে নীর ঘন সিঞ্চনে ২) আজু হাম কি পেখলু নবদ্বীপ চন্দ ৩) দাঁড়াইয়া নন্দের আগে গোপাল কান্দে অনুরাগে ৪) ঘরের বাহিরে দণ্ডে শতবার ৫) রূপলাগি আঁখি বুঝে গুণে মন ভোর ৬) এমন পিরীতি কভু নাহি দেখি গুনি ৭) সখি কি পুছসি অনুভব মোয় ৮) কণ্টক গাড়ি কমল-সম পদতল ৯) মন্দির বাহির কঠিন কপাট ১০) কি মোহিনী জান বঁধু কি মোহিনী জান ১১) বঁধু তুমি যে আমার প্রাণ ১২) এ সখি হামারি দুখের নাহি গুর ১৩) অক্ষুর তপন তাপে যদি জারব ১৪) বহুদিন পরে বঁধুরা এলে ১৫) তাতল সৈকত বারি-বিন্দুসম।

মডিউল-৫: শাক্ত পদাবলী : (ক.বি. সংস্করণ)

১৬ (১২ + ৪)

নিম্নলিখিত পদসমূহ :

- বাল্যলীলা : ১) গিরিবর, আর আমি পারি নে হে, প্রবোধ দিতে উমারে (২)
- আগমনী : ২) গিরি, এবার আমার উমা এলে (৭)
- ৩) কবে যাবে বল গিরিরাজ (১৮)
- ৪) বারে বারে কহ রাণি, গৌরী আনিবারে (২৯)
- ৫) ওহে হর গঙ্গাধর, কর অঙ্গীকার (৩৬)
- ৬) গিরিরাণি, এই নাও তোমার উমারে (৩৮)
- বিজয়া : ৭) ওরে নবমী নিশি, না হইওরে (৮৭)
- ৮) ওহে প্রাণনাথ গিরিবর হে (৯৭)
- ভক্তের আকৃতি : ৯) কেবল আসার আশা, ভবে আসা (১৫৭)
- ১০) মাগো তারা ও শঙ্করি (১৬৩)
- ১১) মা আমায় ঘুরাবে কত (১৬৫)
- ১২) আমি কি দুখেরে ডরাই? (১৮১)
- ১৩) আমায় দেও মা তবিলদারী (২০১)
- ১৪) এমন দিন কি হবে তারা (২১৩)
- ১৫) যশোদা নাচাতো গো মা ব'লে নীলমণি (২২১)

মডিউল-৬: মুকুন্দ চক্রবর্তী - চণ্ডীমঙ্গল ১ম খণ্ড : (ক.বি. সংস্করণ)

১৮ (১৪ + ৪)

পার্ট-২

তৃতীয় পত্র-১০০

মডিউল-১ : কথা সাহিত্যের রূপভেদ : রোমাল, উপন্যাস : ঐতিহাসিক, সামাজিক, রাজনৈতিক, আঞ্চলিক, মনস্তাত্ত্বিক ও চেতনাপ্রবাহরীতি এবং ছোটগল্প। ১৪/ (৭ + ৭)

মডিউল-২: চন্দ্রশেখর - বঙ্কিমচন্দ্র চট্টোপাধ্যায় ১৮ (১৪ + ৪)

মডিউল-৩: শ্রীকান্ত (১ম পর্ব) - শরৎচন্দ্র চট্টোপাধ্যায় ১৮ (১৪ + ৪)

মডিউল-৪: শেখের কবিতা - রবীন্দ্রনাথ ঠাকুর ২৫ (১৫ + ৫ + ৫)

মডিউল-৫: হাঁসুলী বাঁকের উপকথা - তারাশঙ্কর বন্দ্যোপাধ্যায় ২৫ (১৫ + ৫ + ৫)

চতুর্থ পত্র-১০০

মডিউল-১: নাটকের রূপভেদ :

১৫/ (৭-১ + ৭-১)

ট্রাজেডি, কমেডি, প্রহসন, মেলোড্রামা, রূপক, সাংকেতিক, পৌরাণিক, ঐতিহাসিক, সামাজিক, আবসার্ড, একাক্ষ, থার্ড থিয়েটার।

১৬

মডিউল-২: বঙ্গরঙ্গমঞ্চের ইতিহাস : সূচনা থেকে নাট্য নিয়ন্ত্রণ বিল (১৮৭৬, মার্চ) পর্যন্ত।

১৫/ (৭-১ + ৭-১)

নিম্নলিখিত বিষয়সমূহ :

লেবেডফ ও বেঙ্গলি থিয়েটার, নবীনচন্দ্র বসুর শ্যামবাজার থিয়েটার, বেলগাছিয়া নাট্যশালা, জোড়াসাঁকো নাট্যশালা, বাগবাজার অ্যামেচার থিয়েটার (শ্যামবাজার নাট্যসমাজ), ন্যাশনাল থিয়েটার (প্রতিষ্ঠা, তাৎপর্য-প্রথম ও দ্বিতীয় পর্ব), নাট্য নিয়ন্ত্রণ বিল।

মডিউল- ৩: একেই কি বলে সভ্যতা? ও বুড় সালিকের ঘাড়ের রৌ - মধুসূদন দত্ত
(দুটি থেকেই উত্তর লিখতে হবে)।

২০ (১০ + ১০)

মডিউল- ৪: মুক্তধারা - রবীন্দ্রনাথ ঠাকুর

২৫ (১৫+৫+৫)

মডিউল- ৫: টিনের তলোয়ার - উৎপল দত্ত

২৫ (১৫+৫+৫)

পার্ট-৩

পঞ্চম পত্র-১০০

মডিউল- ১: কাব্যের রূপভেদ : আখ্যানকাব্য-গাথাকাব্য, মহাকাব্য, গীতিকাব্য, পত্রকাব্য ও সনেট।

১৮/ (৯+৯)

মডিউল- ২: বীরঙ্গনা - মধুসূদন দত্ত

১৬ (১২+৪)

নিম্নলিখিত পত্রসমূহ :

দুগ্ধস্তের প্রতি শকুন্তলা, সোমের প্রতি তারা, দশরথের প্রতি কেকয়ী, লক্ষ্মণের প্রতি শূর্পণখা, নীলধ্বজের প্রতি জনা।

মডিউল- ৩: সোনার তরী - রবীন্দ্রনাথ ঠাকুর

১৬ (১২+৪)

নিম্নলিখিত কবিতাসমূহ :

সোনার তরী, বৈষ্ণব কবিতা, যেতে নাহি দিব, বসুন্ধরা, নিরুদ্দেশ যাত্রা।

মডিউল- ৪: সঞ্চিতা - নজরুল ইসলাম

১৬ (১২+৪)

নিম্নলিখিত কবিতাসমূহ :

বিদ্রোহী, অভিশাপ, আমার কৈফিয়ৎ, দারিদ্র্য, নারী।

মডিউল- ৫: একালের কবিতা সংকলন (ক.বি. সংস্করণ)

১৮ (১৪+৪)

নিম্নলিখিত কবিতাসমূহ :

- ১) সূচনাতনা - জীবনানন্দ দাশ
- ২) রবীন্দ্রনাথের প্রতি - বুদ্ধদেব বসু
- ৩) প্রচ্ছন্ন স্বদেশ - বিষ্ণু দে
- ৪) বধু - সুভাষ মুখোপাধ্যায়
- ৫) বোধন - সুকান্ত ভট্টাচার্য
- ৬) বাবরের প্রার্থনা - শঙ্খ ঘোষ
- ৭) যেতে পারি কিন্তু কেন যাব? - শক্তি চট্টোপাধ্যায়

- ৮) আমার নাম ভারতবর্ষ - অমিতাভ দাশগুপ্ত
 ৯) মালতীবালা বালিকা বিদ্যালয় - জয় গোহাঙ্গী
 ১০) নিভে যাওয়া দীপগুলি আজ জ্বালিয়ে যাব - মহাদেবী বর্মা (প্রতিবেশী কবিতা)

মডিউল-৬: কাব্যশৈলী বিষয়ে প্রাথমিক আলোচনা করে পাঠ্য কবিতার শৈলী বিচার :

১৬

[কবিতার শৈলীবিচার প্রসঙ্গটি যতো না বিষয়গত, তার চেয়ে অনেক বেশি আঙ্গিকগত বিশ্লেষণ প্রত্যাশা করে। যদিও শেষ বিচারে আঙ্গিক বা ফর্মের বিশ্লেষণ কবিতাকে বুঝতেই, কাব্যসৌন্দর্য নির্ণয় করতেই—তা বলা বাহুল্য।

শৈলী বিচারের ক্ষেত্রে কয়েকটি কথা স্মরণে রাখা উচিত :

- ১। কবিতার বাক্য ও শব্দের বিন্যাসের চমকপ্রদ সৌন্দর্য, তার শৈল্পিক সুবমা ও শব্দকে আশ্রয় করে শব্দাতীত ব্যঞ্জনার ব্যবহার।
- ২। চিত্রকল্প বা বাক্যপ্রতিমার ব্যবহার নৈপুণ্য।
- ৩। শব্দপ্রয়োগের বৈশিষ্ট্য : যা কবির বিশেষ শব্দ-প্রীতির স্বাক্ষর হয়ে ওঠে; রস-পরিণাম লাভ করে।
- ৪। শব্দের ধ্বনিগত মাধুর্য, শব্দার্থের অভিনব ব্যবহারে কবির মৌলিকতা। শব্দ ও ধ্বনির পারস্পরিক নির্ভরতা।
- ৫। ছন্দ ও অলংকার ব্যবহার, স্তবক ও পংক্তি নির্মাণের সচেতন আভিপ্রায়িক প্রয়োগ, যতিচিহ্ন এমন কি দুটি শব্দ অথবা দুটি পংক্তির মধ্যে জমিয়ে রাখা শূন্যস্থানের পরিকল্পিত ব্যবহার—ইত্যাদি।

ষষ্ঠ পত্র-১০০

- মডিউল-১ : পুতুল নাচের ইতিকথা - মানিক বন্দ্যোপাধ্যায় ১৮ (১৪ + ৪)
- মডিউল-২ : অরণ্যের অধিকার - মহাশ্বেতা দেবী ১৬ (১২ + ৪)
- ছোটগল্প :
- মডিউল-৩ : ১) রবীন্দ্রনাথ ঠাকুরের ছোটগল্প : ১৬ (১২ + ৪)
 নিশীথে, একরাত্রি, সুভা, পয়লা নম্বর, ক্ষুধিত পাষণ ও ল্যাবরেটরী।
- মডিউল-৪ : ২) স্বাধীনতা-পূর্ববর্তী বাংলা ছোটগল্প : ২৫ (১৫ + ৫ + ৫)
 অ) পয়োমুখম্ : জগদীশ গুপ্ত, মেঘমল্লার : বিভূতিভূষণ বন্দ্যোপাধ্যায়, চুয়াচন্দন : শরদিন্দু বন্দ্যোপাধ্যায়, মহানগর : প্রেমেন্দ্র মিত্র, চরণ দাস এম. এল.এ : সতীনাথ ভাদুড়ী, ফসিল : সুবোধ ঘোষ, টোপ : নারায়ণ গঙ্গোপাধ্যায়।
- মডিউল-৫ : ৩) স্বাধীনতা-পরবর্তী বাংলা ছোটগল্প ২৫ (১৫ + ৫ + ৫)
 আ) মতিলাল পাত্রী : কমলকুমার মজুমদার, অন্তঃসলিলা : সাবিত্রী রায়, আদাব : সমরেশ বসু, অশ্বমেধের ঘোড়া : দীপেন্দ্রনাথ বন্দ্যোপাধ্যায়, এখন প্রেম : তপোবিজয় ঘোষ, স্টীলের চঞ্চু : সাধন চট্টোপাধ্যায়, দাহ : ফণীশ্বরনাথ রেণু (প্রতিবেশী গল্প)।
 [মডিউল-৪ ও ৫-এর ক্ষেত্রে একালের গল্প সংকলন ১ম ও ২য় খণ্ড (ক.বি. সংস্করণ) পাঠ্য]

সপ্তম পত্র-১০০

- মডিউল- ১: প্রবন্ধ-নিবন্ধের রূপভেদ : ১৮/ (৯+৯)
 প্রবন্ধ, রম্যরচনা, পত্রসাহিত্য, ডায়ারি, ভ্রমণ সাহিত্য, সমালোচনা সাহিত্য।
- মডিউল- ২: কমলাকান্তের দপ্তর - বঙ্কিমচন্দ্র চট্টোপাধ্যায় ১৬ (১২+৪)
 নিম্নলিখিত রচনাসমূহ :
 (একা—কে গায় ওই, আমার মন, পতঙ্গ, বিড়াল)

নিম্নলিখিত পত্রসমূহ :

- পত্র সংখ্যা - ১০ (শিলাইদহের অপর পারে.....)
 ১৮ (ঐ যে মস্ত পৃথিবীটা চূপ করে.....)
 ৩০ (আমাদের ঘাটে একটি নৌকা.....)
 ৬৪ (রোজ সকালে চোখ চেয়েই.....)
 ৬৭ (এখন একলাটি আমার সেই.....)
 ৭৭ (স্রমণের গোলমালের মধ্যে.....)
 ৮১ (ইতিমধ্যে দেখছি খুব.....)
 ১০২ (এদিকে গরমটাও বেশ পড়েছে.....)
 ১০৬ (কাল থেকে হঠাৎ আমার.....)
 ১০৮ (সন্ধ্যাবেলায় পাবনা শহরে.....)

মডিউল-৪: একালের প্রবন্ধ সঞ্চয়ন (ক.বি. নবতম সংস্করণ)

১৫

নিম্নলিখিত প্রবন্ধসমূহ :

- ১) পটুয়া শিল্প - যামিনী রায়
 ২) শিক্ষা ও বিজ্ঞান - সত্যেন্দ্রনাথ বসু
 ৩) যে দেশে বহু ধর্ম বহু ভাষা - অন্নদাশঙ্কর রায়
 ৪) সাহিত্যের রাজনীতি - সরোজ আচার্য

মডিউল-৫: একালের সমালোচনা সঞ্চয়ন (ক.বি. সংস্করণ)

১৫

নিম্নলিখিত রচনাসমূহ :

- ১) আধুনিক সাহিত্য - গোপাল হালদার
 ২) রবীন্দ্রনাথ ও উত্তরসাধক - বুদ্ধদেব বসু
 ৩) তিন দশকের নাট্যসমীক্ষা - দ্বিজেন্দ্রনাথ বন্দ্যোপাধ্যায়
 ৪) রূপকথা - শ্রীকুমার বন্দ্যোপাধ্যায়

মডিউল-৬: বাংলা সাহিত্য বিষয়ে একটি প্রবন্ধ রচনা

২০

অষ্টম পত্র-১০০

মডিউল-১ : সংস্কৃত সাহিত্যের ইতিহাস :

২৫ (১৫ + ৫ + ৫)

(কালিদাস - কবি ও নাট্যকার, ভবভূতি, বাণভট্ট, শূদ্রক, জয়দেব)।

মডিউল-২ : ইংরেজি সাহিত্যের ইতিহাস :

২৫ (১৫ + ৫ + ৫)

(শেকসপিয়ার - কবি ও নাট্যকার, মিলটন, ওয়ার্ডসওয়ার্থ, শেলি, কীটস, এলিয়ট, স্কট, চার্লস ডিকেন্স, বার্নার্ড শ'।

মডিউল-৩ : প্রতিক্রমী সাহিত্যের ইতিহাস : হিন্দী (পঠন-পাঠন হবে বাংলায়)

১৮ (১৪ + ৪)

[পাঁচ জন লেখক : ভারতেন্দু হরিশচন্দ্র, প্রেমচাঁদ, মহাদেবী বর্মা, নিরলা, ফনীন্দ্রনাথ রেণু]

মডিউল-৪ : কাব্য জিজ্ঞাসা - অতুলচন্দ্র গুপ্ত

১৬/ (৮ + ৮)

(ধ্বনি ও রস)

মডিউল-৫ : সাহিত্য - রবীন্দ্রনাথ ঠাকুর

১৬/ (৮ + ৮)

(সাহিত্যের তাৎপর্য, সাহিত্যের বিচারক, সৌন্দর্যবোধ)।

বাংলা (সাধারণ)

পার্ট - ১

প্রথম পত্র - ১০০

ক) বাংলা সাহিত্যের ইতিহাস : আধুনিক যুগ

মডিউল : ১	১. গদ্যরীতি ও প্রবন্ধ : শ্রীরামপুর মিশন, ফোর্ট উইলিয়াম কলেজ, রামমোহন রায়, ঈশ্বরচন্দ্র বিদ্যাসাগর, অক্ষয়কুমার দত্ত, প্যারীচাঁদ মিত্র, কালীপ্রসন্ন সিংহ, বঙ্কিমচন্দ্র চট্টোপাধ্যায়, রবীন্দ্রনাথ ঠাকুর।	১৫
মডিউল : ২	২. কাব্য কবিতা : ঈশ্বরচন্দ্র গুপ্ত, রঙ্গলাল বন্দ্যোপাধ্যায়, মধুসূদন দত্ত, হেমচন্দ্র বন্দ্যোপাধ্যায়, নবীনচন্দ্র সেন, বিহারীলাল চক্রবর্তী, রবীন্দ্রনাথ ঠাকুর।	১৫
মডিউল : ৩	৩. নাটক : মধুসূদন দত্ত, দীনবন্ধু মিত্র, গিরিশচন্দ্র ঘোষ, রবীন্দ্রনাথ ঠাকুর, দ্বিজেন্দ্রলাল রায়, বিজন ভট্টাচার্য।	১৫
মডিউল : ৪	৪. সাময়িক পত্র : দিগদর্শন থেকে বঙ্গদর্শন। (সংক্ষিপ্ত টীকা)	৫
মডিউল : ৫	৫. উপন্যাস ও ছোটগল্প : প্যারীচাঁদ মিত্র, বঙ্কিমচন্দ্র চট্টোপাধ্যায়, রবীন্দ্রনাথ ঠাকুর, শরৎচন্দ্র চট্টোপাধ্যায়, বিভূতিভূষণ বন্দ্যোপাধ্যায়, তারাশঙ্কর বন্দ্যোপাধ্যায়, মানিক বন্দ্যোপাধ্যায়।	১৫ + ৫
মডিউল : ৬	৬. অলঙ্কার : অনুপ্রাস, যমক, শ্লেষ, বক্তৃৎকতি, উপমা, রূপক, উৎপ্রেক্ষা, সমাসোক্তি, ব্যাজস্ততি, ব্যতিরেক — সংজ্ঞা ও উদাহরণ।	৫ × ২ = ১০
মডিউল : ৭	৭. সাহিত্যের রূপভেদ : গীতিকবিতা, মহাকাব্য, ট্রাজেডি, কমেডি, পৌরাণিক-ঐতিহাসিক-সামাজিক নাটক। রোমাণ, সামাজিক-ঐতিহাসিক-পারিবারিক উপন্যাস, ছোটগল্পের সংজ্ঞা, ছোটগল্পের সঙ্গে উপন্যাসের তুলনা, প্রবন্ধ ও রম্যরচনা।	১০ + ১০ = ২০

পার্ট - ২

দ্বিতীয় পত্র - ১০০

মডিউল : ১	১) বৈষ্ণব পদাবলী (ক.বি. সংস্করণ) নিম্নলিখিত পদসমূহ (প্রথম পংক্তি) (১) নীরদনরনে নীর ঘন সিঞ্চনে (২) আজু হাম কি পেখলু নবদ্বীপ চন্দ (৩) দাঁড়াইয়া নদের আগে গোপাল কান্দে অনুরাগে (৪) ঘরের বাহিরে দণ্ডে শতবার (৫) রূপলাগি আঁখি ঝুরে গুণে মন ভোর (৬) এমন পিরীতি কতু নাহি দেখি শুনি (৭) সখি কি পুছসি অনুভব মোয় (৮) কণ্টক গাড়ি কমল-সম পদতল (৯) মন্দির বাহির কঠিন কপাট (১০) কি মোহিনী জানি বঁধু কি মোহিনী জানি (১১) এ সখি হামারি দুখের নাহি ওর (১২) অঙ্কুর তপন তাপে যদি জারব (১৩) বর্ষদিন পরে বঁধুয়া এলে।	১৫ + ৫ + ৫ = ২৫
মডিউল : ২	২) মেঘনাদবধ কাব্য (প্রথম সর্গ ও চতুর্থ সর্গ) - মধুসূদন দত্ত	১৫ + ৫ + ৫ = ২৫
মডিউল : ৩	৩) পুনশ্চ - রবীন্দ্রনাথ ঠাকুর নিম্নলিখিত কবিতাসমূহ : ছেলেটা, সাধারণ মেয়ে, বাঁশি, প্রথম পূজা।	১৫
মডিউল : ৪	৪) একালের কবিতা সংকলন (ক.বি. সংস্করণ) নিম্নলিখিত কবিতাসমূহ : নষ্টনীড় (সমর সেন), আমার ভারতবর্ষ (বীরেন্দ্র চট্টোপাধ্যায়), দেশ দেখাচ্ছ অন্ধকারে (নীরেন্দ্রনাথ চক্রবর্তী), কেউ কথা রাখেনি (সুনীল গঙ্গোপাধ্যায়)।	১৫
মডিউল : ৫	৫) ছন্দ ১. অঙ্কুর, দল, কলা, মাত্রা যতি, পর্ব, পদ, পংক্তি, চরণ — সংজ্ঞা ও উদাহরণ সহ প্রতিটির বিস্তারিত আলোচনা। ২. বাংলা ছন্দের ত্রিধারা : উদাহরণ। ৩. ছন্দোল্লিপি (পর্ব, পদ, পংক্তি, লয়, রীতি, মাত্রার উল্লেখ বাঞ্ছনীয়)	১২ + ৮ = ২০

তৃতীয় পত্র - ১০০

মডিউল : ১	১) সংকলন - রবীন্দ্রনাথ ঠাকুর পাঠ্য প্রবন্ধ সমূহ : শিক্ষার মিলন, পূর্ব ও পশ্চিম, মেঘদূত, কেকাধ্বনি।	১৫
মডিউল : ২	২) রাজা ও রাণী - রবীন্দ্রনাথ ঠাকুর	১৫
মডিউল : ৩	৩) একালের ছোটগল্প সংকলন (ক.বি. সংস্করণ) নিম্নলিখিত গল্পসমূহ : পুই মাচা (বিভূতিভূষণ বন্দ্যোপাধ্যায়), না (তারশঙ্কর বন্দ্যোপাধ্যায়), হারানের নাতজামাই (মানিক বন্দ্যোপাধ্যায়), চড়াই-উৎরাই (নরেন্দ্রনাথ মিত্র)।	১৫ + ৫ = ২০
মডিউল : ৪	৪) কপালকুণ্ডলা - বঙ্কিমচন্দ্র চট্টোপাধ্যায়	১৫ + ৫ + ৫ = ২৫
মডিউল : ৫	৫) পল্লীসমাজ - শরৎচন্দ্র চট্টোপাধ্যায়	১৫ + ৫ + ৫ = ২৫

বাংলা সাধারণ পাঠক্রম : পার্ট - ৩

চতুর্থ পত্র - ১০০

মডিউল : ১	১) পরিভাষা (সাহিত্য-সৌন্দর্যতত্ত্ব বিষয়ক নির্দিষ্ট ২০০ টি পরিভাষা) (প্রচলিত পাঠক্রম অনুযায়ী)	১ x ১০ = ১০
মডিউল : ২	২) প্রকৃৎ সংশোধন	১০
মডিউল : ৩	৩) সাহিত্য অথবা সমাজ বিষয়ক প্রবন্ধ রচনা (অনধিক ৩০০ শব্দে)	১৫
মডিউল : ৪	৪) ইংরেজি থেকে বাংলায় অনুবাদ	১৫
মডিউল : ৫	৫) ভাষাতত্ত্ব : ক) উদাহরণ সহ সংজ্ঞা লিখন — আদি-মধ্য-অন্ত্য স্বরাগম; আদি-মধ্য-অন্ত্য ব্যঞ্জনগম; স্বরলোপ; সমাক্ষর লোপ; মুর্ধন্বীভবন; সকারী ভবন; রকারী ভবন; বিপর্যাস; সাদৃশ্য; বিমিশ্রণ/মিশ্রণ; জোড় কলম শব্দ; সংকর শব্দ; লোকনিরুক্তি; সুভাষণ; অপভ্রাশ্য। খ) শব্দভেদ	২ x ৫ = ১০
মডিউল : ৬	৬) আন্তর্জাতিক ধ্বনিমূলক বর্ণমালা-র (IPA) চিহ্ন ব্যবহার করে লিপ্যন্তরকরণ (Phonetic Transcription)	১০
মডিউল : ৭	৭) সাক্ষাৎকার/রিপোর্টাজ লিখন	১৫
মডিউল : ৮	৮) বিজ্ঞাপন/প্রাতিষ্ঠানিক পত্রলিখন	১৫

ত্রি-বার্ষিক স্নাতক পর্যায়ে পাঠ্যসূচি

আধুনিক ভারতীয় ভাষা

বাংলা

পূর্ণমান - ৫০

ক। ভাষা

মডিউল : ১ ১. বোধ পরীক্ষণ ১৫

নিম্নলিখিত প্রবন্ধসমূহ পাঠ্য :

- i) বঙ্গদেশের কুবক — বঙ্কিমচন্দ্র চট্টোপাধ্যায়
- ii) স্বদেশী সমাজ — রবীন্দ্রনাথ ঠাকুর
- iii) বাঙ্গালা ভাষা — স্বামী বিবেকানন্দ
- iv) শিল্প প্রসঙ্গ — নন্দলাল বসু
- v) অপবিজ্ঞান — রাজশেখর বসু
- vi) স্ত্রীজাতির অবনতি — বেগম রোকেয়া

মডিউল : ২ প্রতিবেদন রচনা (সংবাদপত্রে প্রকাশের উপযোগী করে কোন ঘটনার প্রতিবেদনের খসড়া রচনা) ১০

অথবা

পুনর্নির্মাণ (সংবাদপত্রে প্রকাশিত কোন প্রতিবেদন থেকে নিজস্ব অভিমত প্রকাশ কমবেশি ৫০ শব্দ)

মডিউল : ৩ পরিভাষা (ক.বি. প্রকাশিত 'ভাষাপাঠ সঞ্চয়ন'-এ নির্ধারিত ২৫০ টি) ৫

খ। সাহিত্য

মডিউল : ৪ কবিতা (কাব্য সৌন্দর্য বিশ্লেষণ) ১০

রবীন্দ্রনাথ ঠাকুরের 'নৈবেদ্য'-র অন্তর্গত নিম্নলিখিত কবিতাসমূহ পাঠ্য :

- i) শতাব্দীর সূর্য আজি রক্তমেঘ-মাঝে..... (৬৪ নং)
- ii) স্বার্থের সমাপ্তি অপঘাতে..... (৬৫ নং)
- iii) তোমার ন্যায়ের দণ্ড প্রত্যেকের করে..... (৭০ নং)
- iv) চিন্তা যেথা ভয়শূন্য উচ্চ যেথা শির..... (৭২ নং)

মডিউল : ৫ ছোটগল্প ১০

রবীন্দ্রনাথ ঠাকুরের নিম্নলিখিত গল্পগুলি পাঠ্য :

- i) ছুটি ii) পোস্টমাস্টার iii) জীবিত ও মৃত iv) ধ্বংস



UNIVERSITY OF CALCUTTA



Syllabi for

Three-year B.Com. Honours and General Degree Courses

Under 1+1+1 System of Examination

Introduced from the Academic Session 2010-11

B.Com. Honours & General Course Curricula / Structure

A. B.Com. Honours in ACCOUNTING & FINANCE

1STYear

Paper	Subject	Marks
1.1Chg	Language	100
	<i>Major Indian Language -- 50 marks</i>	
	<i>Communicative English -- 50 marks</i>	
1.2Chg	Financial Accounting I	100
1.3Chg	Business Regulatory Framework	100
1.4Chg	Principles & Practice of Management & Business Communication (50+50)	100
1.5Chg	Economics I	100
1.6Chg	Business Mathematics & Statistics	100
	Total	600

2NDYear

Paper	Subject	Marks
2.1Chg	Information Technology & Its Application in Business (Theory -50 marks + Practical -50 marks)	100
2.2Chg	Principles of Marketing* (50) & e-Commerce (50)	100
2.3Ch	Economics II & Advanced Business Mathematics	100
2.4Ch	Financial Accounting II	100
2.5Ch	Direct & Indirect Taxation	100
2.6Ch	Cost & Management Accounting	100
	Total	600

3RDYear

Paper	Subject	Marks
3.1HA	Financial Accounting III	100
3.2HA	Auditing	100
3.3HA	Indian Financial System and Financial Market Operations	100
3.4HA	Financial Management	100
3.5HA	Project Work (Written 50) + (Viva-voce 50)	100
3.6Chg	Environmental Studies	100
	Total	600
	GRAND TOTAL	1800

B. B.Com. Honours in MARKETING

1ST Year

Paper	Subject	Marks
1.1Chg	Language	100
	<i>Major Indian Language -- 50 marks</i>	
	<i>Communicative English -- 50 marks</i>	
1.2Chg	Financial Accounting I	100
1.3Chg	Business Regulatory Framework	100
1.4Chg	Principles & Practice of Management & Business	
	Communication (50+50)	100
1.5Chg	Economics I	100
1.6Chg	Business Mathematics & Statistics	100
	Total	600

2ND Year

Paper	Subject	Marks
2.1Chg	Information Technology & Its Application in	100
	<i>Business (Theory -50 marks + Practical -50 marks)</i>	
2.2Chg	Principles of Marketing* (50) & e-Commerce (50)	100
2.3Ch	Economics II (incl. Mathematics for Economics)	100
2.4Ch	Financial Accounting II	100
2.5Ch	Direct & Indirect Taxation	100
2.6Ch	Cost & Management Accounting	100
	Total	600

3RD Year

Paper	Subject	Marks
3.1HM	Consumer Behaviour (50) & Sales Management (50)	100
3.2HM	Product & Pricing Management (50) + Marketing Communication (50)	100
3.3HM	Retail Management (50) & Marketing of Services (50)	100
3.4HM	Rural Marketing (50) & International Marketing (50)	100
3.5HM	Project Work (Written 50) + (Viva-voce 50)	100
3.6Chg	Environmental Studies	100
	Total	600
	GRAND TOTAL	1800

C. B.Com. Honours in TAXATION

1ST Year

Paper	Subject	Marks
1.1Chg	Language	100
	<i>Major Indian Language -- 50 marks</i>	
	<i>Communicative English -- 50 marks</i>	
1.2Chg	Financial Accounting I	100
1.3Chg	Business Regulatory Framework	100
1.4Chg	Principles & Practice of Management & Business Communication (50+50)	100
1.5Chg	Economics I	100
1.6Chg	Business Mathematics & Statistics	100
	Total	600

2ND Year

Paper	Subject	Marks
2.1Chg	Information Technology & Its Application in Business (<i>Theory -50 marks + Practical -50 marks</i>)	100
2.2Chg	Principles of Marketing* (50) & e-Commerce (50)	100
2.3Ch	Economics II (incl. Mathematics for Economics)	100
2.4Ch	Financial Accounting II	100
2.5Ch	Direct & Indirect Taxation	100
2.6Ch	Cost & Management Accounting	100
	Total	600

3RD Year

Paper	Subject	Marks
3.1HT	Public Finance & Taxation	100
3.2HT	Direct Tax:Laws & Practices	100
3.3HT	Indirect Tax: Laws & Practices	100
3.4HT	Tax Planning & Procedures	100
3.5HT	Project Work (Written 50) + (Viva-voce 50)	100
3.6Chg	Environmental Studies	100
	Total	600
	GRAND TOTAL	1800

D. B.Com. Honours in Computer Applications & e-Business

1ST Year

Paper	Subject	Marks
1.1Chg	Language	100
	<i>Major Indian Language -- 50 marks</i>	
	<i>Communicative English -- 50 marks</i>	
1.2Chg	Financial Accounting I	100
1.3Chg	Business Regulatory Framework	100
1.4Chg	Principles & Practice of Management & Business	
	Communication (50+50)	100
1.5Chg	Economics I	100
1.6Chg	Business Mathematics & Statistics	100
	Total	600

2ND Year

Paper	Subject	Marks
2.1Chg	Information Technology & Its Application in	100
	Business (<i>Theory -50 marks + Practical -50 marks</i>)	
2.2Chg	Principles of Marketing* (50) & e-Commerce (50)	100
2.3Ch	Economics II (incl. Mathematics for Economics)	100
2.4Ch	Financial Accounting II	100
2.5Ch	Direct & Indirect Taxation	100
2.6Ch	Cost & Management Accounting	100
	Total	600

3RD Year

Paper	Subject	Marks
3.1HeB	Fundamentals of Computer	100
3.2HeB	Data Base Management System (50) &	
	System Analysis & Design (50)	100
3.3HeB	Internet & World Wide Web (50)	
	& Functional e-Business System (50)	100
3.4HeB	Computer Applications (50) &	
	e-Business Applications (50) [Practical]	100
3.5HeB	Project Work (Written 50) + (Viva-voce 50)	100
3.6Chg	Environmental Studies	100
	Total	600
	GRAND TOTAL	1800

B.Com. General Degree Course

1STYear

Paper	Subject	Marks
1.1Chg	Language	100
	<i>Major Indian Language -- 50 marks</i>	
	<i>Communicative English -- 50 marks</i>	
1.2Chg	Financial Accounting I	100
1.3Chg	Business Regulatory Framework	100
1.4Chg	Principles & Practice of Management & Business Communication (50+50)	100
1.5Chg	Economics I	100
1.6Chg	Business Mathematics & Statistics	100
	Total	600

2NDYear

Paper	Subject	Marks
2.1Chg	Information Technology & Its Application in Business (<i>Theory -50 marks + Practical -50 marks</i>)	100
2.2Chg	Principles of Marketing* (50) & e-Commerce (50)	100
2.3Cg	Financial Accounting II	100
2.4Cg	Direct & Indirect Taxation	100
2.5Cg	Cost & Management Accounting I	100
2.6Cg	Auditing	100
	Total	600

I 3RDYear Elective Group -- Accounting & Finance

Paper	Subject	Marks
3.1GA	Financial Accounting III	100
3.2GA	Cost & Management Accounting II	100
3.3GA	Financial Management	100
3.4Chg	Environmental Studies	100
	Total	400
	GRAND TOTAL	1600

II 3RDYear Elective Group -- Marketing

Paper	Subject	Marks
3.1GM	Consumer Behaviour (50) & Sales Management (50)	100
3.2GM	Product & Price Management (50) + Rural Marketing (50)	100
3.3GM	Retail Management (50) & Marketing of Services (50)	100
3.4Chg	Environmental Studies	100
	Total	400
	GRAND TOTAL	1600

III 3RDYear Elective Group -- Taxation

Paper	Subject	Marks
3.1GT	Direct Tax: Laws & Practices	100
3.2GT	Indirect Tax: Laws & Practices	100
3.3GT	Tax Planning & Procedures	100
3.4Chg	Environmental Studies	100
	Total	400

	GRAND TOTAL	1600

IV 3RDYear Elective Group -- Computer Applications & E-Business

Paper	Subject	Marks
3.1GeB	Fundamentals of Computer	100
3.2GeB	Data Communication & Networking (50) & Functional e-Business (50)	100
3.3GeB	Computer Applications (50) & e-Business Applications (50) [Practical]	100
3.4Chg	Environmental Studies	100
	Total	400
	GRAND TOTAL	1600

Chg: Common Paper for all Honours Courses & General Courses

Ch: Common Paper for Honours Courses Only

Cg: Common Paper for General Courses Only

HA/HM/HT/HeB: Papers for Honours in Accounting & Finance/Marketing/Taxation/Computer Application & e-Business

GA/GM/GT/GeB: Papers for General Courses in the Elective Group: Accounting & Finance/Marketing/Taxation/Computer Application & e-Business

Detailed Syllabi

Common Paper for B.Com. Honours and General (Paper 1.1 to 2.2)

Paper 1.1 Chg: LANGUAGE

Module II

Communicative English

Marks – 50

- Unit 1. Listening & Understanding Lessons** **Lectures- 8**
- Unit 2. Reading Skill:** Intensive and Extensive Reading, Skimming and Scanning
Lectures- 6
- Unit 3. Communication Skill:** Conversation Practice, Debates, Colloquium
Lectures- 5
- Unit 4. Writing Skill:** Basic Rules, Introductory Grammar, Common Errors
Writing CVs, Official Correspondence, Letter for approval of the authority, Circular, Agenda, Notice, Press Release, Report writing about the proceedings of any seminar, Preparation of official reports, etc.
Lectures- 15/ Marks-30
- Unit 5. Business Communication:** Letter to Vendor-quotation, Query for details of any item, Reminder letter, Newsletters, Newspaper Reports, Advertisement, etc.
Lectures- 10/ Marks-20
- Unit 6. Personality Grooming:** Mock Interview, Group Discussions and Seminar Presentations.
Lectures- 6

(Units 4 & 5 are meant for Final Written Examination. Colleges should conduct test on Units 1, 2, 3, & 6 separately in the form of Class Test/ Class Assignments etc., apart from written test on Units 4&5)

Suggested Readings

- Nilanjana Gupta, Communicate with confidence, Anthem Press
- V. Syamala, Effective English Communication for you, Emerald Publisher
- Krishnamohan & Meera Banerji, Developing Communication Skills
- R.K.Madhukar, Business Communication, Vikash Publishing House Pvt. Ltd.
- Shalini Sharma, Concepts of Professional Communication, Acme Learning

**Common Paper for B.Com. Honours and General
Paper 1.2Chg: FINANCIAL ACCOUNTING – I
(MODULE-I : 50 marks)**

Unit	Topic	Details	Marks allotted	No. of lectures
1	Introduction	<ul style="list-style-type: none"> Nature of accounting; Users of accounting information; Financial & Management accounting; Qualitative characteristics of accounting information. Double entry book keeping system – Basic accounting equation, meaning of assets, liabilities, equity, revenue and expenses. Accounting Cycle - Recording of transaction: Journal, Ledger and preparation of Trial Balance. Bases of accounting; cash basis and accrual basis. Basic concepts and conventions: entity, money measurement, going concern, cost, realisation, accruals, periodicity, consistency, prudence (conservatism), materiality, matching and full disclosures. 	8	8
	Concepts for determination of business income	<ul style="list-style-type: none"> Revenue recognition: Meaning of revenue; objective; timing of recognition. Recognition of expenses. Inventories: meaning. Significance of inventory valuation. Lower of cost or market rule; Inventory ascertainment and reconciliation. 	8	8
		<ul style="list-style-type: none"> The nature of depreciation. The accounting concept of depreciation. Factors in the measurement of depreciation. Methods of computing depreciation: straight line method and diminishing balance method; Disposal of depreciable assets; change in method of charging depreciation. Accounting for depreciation: Asset-depreciation, Asset-provision. Reserves and provisions: Meaning; Objective; Types & Accounting 	8	10
		<ul style="list-style-type: none"> Capital and revenue expenditures and receipts: general introduction only. Adjustment and rectification 	8	10
2	Final accounts	Preparation of financial statements: of sole proprietorship business entities from a trial balance – Manufacturing, Trading, P/L A/c and Balance Sheet	18	20
			50	56

**Paper 1.2Chg: FINANCIAL ACCOUNTING – I
(MODULE-II : 50 marks)**

Unit	Topic	Details	Marks allotted	No. of lectures
1	Final accounts	Preparation of financial statements: a) from incomplete records b) of non-profit organisation	15	16
2	Accounting for special sales transaction	<ul style="list-style-type: none"> • Consignment: Basic features; difference with sales. Recording in the books of Consignor – at cost & at invoice price, Valuation of unsold stock; Ordinary commission. Treatment and valuation of abnormal & normal loss. Special commission; Del credere commission (with and without bad debt) - use of Consignment Debtors A/C. Recording in the books of Consignee • Accounting for sale on approval 	20	24
3	Sectional and Self balancing ledger	<ul style="list-style-type: none"> • Concept of sectional balancing, preparation of control accounts. Self balancing Ledger: advantages; Recording process; preparation of Adjustment accounts. 		
4	Insurance claim for loss of stock and for loss of profit	<ul style="list-style-type: none"> • Loss of stock: Physical & ownership concept; concept of under-insurance and average clause; computation of claim – with price change; consideration of unusual selling line; price reduction etc. • Loss of profit: Concept – insured & uninsured standing charges, GP rate, short sales and increased cost of working, average clause and computation of claim (simple type) 		
5	Partnership accounts-I	P/L Appropriation account; Capital & Current account; Guarantee – by firm, by partner and both ; correction of appropriation items with retrospective effect. Change in constitution of firm – change in P/S ratio, admission, retirement and retirement cum admission – treatment of Goodwill, revaluation of assets & liabilities (with/without alteration of books), treatment of reserve and adjustment relating to capital; treatment of Joint Life Policy, Death of a partner	15	16
			50	56

Suggested Reading:

- Sukla, Grewal, Gupta: Advanced Accountancy Vol. I, S Chand
- R. L.Gupta & Radheswamy, Advanced Accountancy Vol. I, S. Chand
- Maheshwari & Maheshwari, Advanced Accountancy Vol. I, Vikash Publishing House Pvt. Ltd.
- Sehgal & Sehgal, Advanced Accountancy Vol. I, Taxman Publication
- B. Banerjee, Regulation of Corporate Accounting & Reporting in India, World Press.
- Hanif & Mukherjee, Financial Accounting, TMH
- Frank Wood, Business Accounting Vol 1, Pearson
- Tulsian, Financial Accounting, Pearson
- Accounting Standards issued by ICAI

Common Paper for B.Com. Honours and General
Paper 1.3 Chg: BUSINESS REGULATORY FRAMEWORK
MODULE –I: 50 marks

Unit 1. The Indian Contract Act, 1872 No. of classes 20 / marks 20

1.1 Introduction

Essential elements of a valid contract, classification of contracts

1.2 **Offer and Acceptance:** meaning, rules relating to valid offer and acceptance; communication of offer and acceptance; revocation of offer and acceptance

1.3 **Consideration :** definition ; essential elements, types of consideration ; “no consideration no contract” and it’s exceptions

1.4 **Capacity of Parties:** Competency to contract; minor; persons of unsound mind; persons disqualified by other laws

1.5 **Consent:** definition of consent and free consent; coercion; undue influence; fraud; misrepresentation; mistake

1.6 **Void and Voidable Agreements:** definitions; distinction between void and illegal agreement; wagering agreement

1.7 **Discharge of Contracts:** meaning; methods of termination or discharge of contract

1.8 **Special Contracts:** definition only

contingent contract; quasi contract; contract of indemnity; contract of guarantee; bailment; pledge

Unit- 2 The Sale of Goods Act, 1930 No. of classes 12 / marks 8

2.1 **Introduction:** definition; goods and their classification; sale and a agreement to sell; essential elements of contract of sale; sale distinguished from hire purchase and instalment sale

2.2 **Conditions and Warranties:** distinction between condition and warranty; implied conditions and warranties

2.3 Doctrine of Caveat Emptor and its exceptions

2.4 **Transfer of Ownership:** passing of property from the seller to the buyer

2.5 **Transfer of Title by Non-owners:** unpaid seller and his rights

Unit – 3 Indian Partnership Act, 1932 No. of classes 12 / marks 8

3.1 **Partnership:** meaning - partner, firm and firm name; essential elements; true test of partnership

3.2 **Types of Partner:** partnership distinguished from co-ownership, company, club; partnership by estoppel or holding out; limited partnership

3.3 **Registration of Partnership Firm:** consequences of non-registration

3.4 Minor’s Position in Partnership

3.5 **Rights and Duties of the Partner:** relation of partners with third parties; implied authority of a partner restrictions on the implied authority of a partner

3.6 **Dissolution of Firms:** meaning and grounds of dissolution

Unit – 4

The Negotiable Instruments Act, 1881

No. of classes 12 / marks 8

4.1 **Negotiable Instruments:** definition, features; Promissory Note, Bill of Exchange and Cheque – essential elements; distinction between Promissory Note, Bill of Exchange and Cheque; types of cheques – modes of crossing cheques; inchoate stamped instrument; accommodation bill; fictitious bill

4.2 **Endorsement** – types of endorsement

4.3 **Holder and Holder in Due Course:** rights of holder in due course

4.4 **Dishonour of Negotiable Instruments:** modes of dishonour; consequences; notice of dishonour; Noting; Protest

- Unit – 5 Consumer Protection Act, 1986 No. of classes 6 / marks 6**
 5.1 *Introduction*: objective of the Act, definitions of complaint, consumer; consumer dispute, goods, services, etc.
 5.2 *Objectives of Central Council and State Council*
 5.3 *Consumer Dispute Redressal Agencies*: composition and jurisdiction of district forum, State Commission and National Commission
 5.4 *Manner of Lodging a Complaint*: procedure of complaint; findings of District Forum, Appeal

Paper 1.3 Chg: MODULE –II Marks 50
INDIAN COMPANY LAW

- Unit – 1 No. of classes 12 / marks 10**
Introduction – definitions, features and types of Companies; private company and public company – differences, conversion of private company into public company and vice versa

- Unit – 2 No. of classes 12 / marks 10**
 Memorandum of Association and Articles of Association, distinction, alteration of Memorandum and Articles of Association, Doctrine of Ultra Vires and Indoor Management; Prospectus- form and content- statutory requirements of a prospectus; additional disclosures in prospectus statement in lieu of prospectus statement by experts, Shelf prospectus, red- herring prospectus, abridged prospectus, misstatement in prospectus and its consequences; minimum subscription; Dematerialized shares

- Unit – 3 No. of classes 8 / marks 6**
 Formation of Company: essential steps, procedure for registration and incorporation, certificate of incorporation and commencement of business; promoters – legal status, duties, liabilities and remuneration; allotment of shares

- Unit – 4 No. of classes 14 / marks 12**
 Share Capital – equity and preference shares; stock; sweat equity shares; ESOP(Employees stock option scheme); rights issue; share certificate and share warrants - distinction; bonus shares; transfer and transmission of shares; buy back of shares; debenture- classification

- Unit – 5 No. of classes 14 / marks 12**
Board of Management
 Director- qualification, disqualification, appointment, legal position; number of directorship ; removal, Resignation of Director; duties, liabilities, powers of board of directors; Managing Director – qualification, appointment;
 Company Meetings - quorum, resolution, Minutes;
 Winding up – modes, Grounds for compulsory and voluntary winding up

Suggested Readings

- Tulsian,P.C., Business LawTMH
- Chandra P.R., Business Law, Galgotia
- Mathur, Satish B., Business Law, TMH
- Kapoor, N.D., Business Law, Sultan Chand
- Gulshan, S.S., Business Law, Excel Books
- Kapoor, N.D., Corporate Law, Sultan Chand
- Sen & Mitra, Commercial Law including Company Law, World Press
- Bhadra, Satpati & Mitra, Karbari Ainer Ruprekha (Bengali Version), Dishari
- Ramaiya, A., Guide to the Companies Act, Wadhwa & Co.

**Paper 1.4 Chg: PRINCIPLES AND PRACTICE OF MANAGEMENT &
BUSINESS COMMUNICATION**

**MODULE – I
PRINCIPLES AND PRACTICE OF MANAGEMENT
Marks - 50**

Unit1. Introduction to Management: Management - definition, importance, functions; Nature-as profession, science and art, universality of management; Levels of management; managerial tasks and skills

(5 lectures/ 4 marks)

Unit 2. Different Schools of Management Thought: Classical School-contributions of Taylor and Fayol; Neo-classical School-Human Relations approach and Behavioural Science approach; Modern School-Systems approach and Contingency approach

(12 lectures/ 8 marks)

Unit 3. Planning: concept, importance, types, steps, premises, barriers to effective planning and remedial measures; Strategic Planning-concept; Forecasting-concept, techniques

(12 lectures/ 8 marks)

Unit 4. Organizing : concept, importance, principles, different organization models - Line & Staff, Functional; Departmentation – need, basis, principles; Delegation of Authority-elements, steps, barriers; Centralisation and Decentralization of Authority; Span of Management -concept and determining factors

(10 lectures /8 marks)

Unit 6. Motivation: concept, importance, contributions of McGregor, Maslow, and Herzberg

(8 lectures /8 marks)

Unit 7. Leadership: concept, importance, types, leadership traits; Tannenbaum & Schmidt's Model and Blake & Mouton's Model

(8 lectures/ 8 marks)

Unit 8. Co-ordination: concept, significance, principles, techniques

(2lectures /2 marks)

Unit 9. Control: concept, steps, tools

(4 lectures/ 4 marks)

Suggested Readings

- Koontz and Weirich, Essentials of Management, Tata McGraw Hill, New Delhi
- Drucker, P F, Management Challenges for the 21st Century, Butterworth, Oxford
- Luthans, F, Organizational Behavior, McGraw Hill, New York
- Allen, L A, Management and Organisation, Tokyo
- Stoner and Freeman, Management, PHI, New Delhi
- Griffin, R W, Management, Houghtan Mifflin, Boston
- Tripathy, P C, Reddy, P N, Principles of Management, Tata McGraw Hill, New Delhi
- Ravichandran, K, Nakkiran, S, Principles of Management, Avinash Paperbacks, Delhi
- Jwalkar, Ghanekar & Bhivpathaki, Principles & Practice of Management, Everest Publishing House
- Parag Dewan, Management Principles & Practices, Excel Books

Common Paper for B.Com. Honours and General
PAPER 1.4 Chg
MODULE- II
BUSINESS COMMUNICATION
50 MARKS

Unit-I: Introduction: definition, objectives, importance, elements, process, forms, models; levels of analysis of business communication; principles of effective communication, barriers to Communication and remedial measures, role of communication in conflict resolution
(10 Classes/ 10 marks)

Unit-II: Types of Communication: formal and informal communication; grapevine; characteristics of corporate communication; communication network
(10 Classes/ 10 marks)

Unit-III: Tools of Communication: emergence of communication technology; modern forms of communication – Fax, E-mail, Video Conferencing
(10 Classes/ 10 marks)

Unit-IV: Drafting – notice, circular, resolution, minutes, report; CV writing, business letter writing – offer letter, quotation, status enquiry, confirmation, execution, refusal and cancellation of order, recommendation, credit collection, claim, bank loan
(20 Classes/ 20 marks)

Suggested Readings

- Anjanees Sethi & Bhavana Adhikari, Business Communication, TMH
- R.K.Madhukar, Business Communication, Vikash Publishing House Pvt. Ltd.
- Chaturvedi & Chaturvedi, Business Communication : Concepts, Cases and Applications, Pearson
- M.K.Shegal & Vandana Khetarpal, Business Communication, Excel Books

Common Paper for B.Com. Honours and General
Paper 1.5 Chg: ECONOMICS –I
Module- I
Microeconomic Theory
50 marks

Unit – I: Introduction

Economics — scope and subject matter. Distinction between Economics and Business Economics. Tools required – Functional relationships, schedules, graphs, concept of slope and its measurement- etc. Resources-scarcity and efficiency - Production Possibility Frontier-it's shifting.
(Lectures 2 / Marks 2)

Unit – II: Basics of Demand and Supply

The concept of demand and demand function - Derivation of Individual demand curve and Market demand curve– Shifting of the demand curve – The supply function and the supply curve – Derivation of individual supply curve and market supply curve – Shifting of the supply curve- Determination of equilibrium price.
(Lectures 3 / Marks 4)

Unit – III: Theory of Consumer Behaviour: Cardinal analysis – Law of diminishing marginal utility – consumer surplus Ordinal approach – Indifference curve analysis – Budget line – Consumer Equilibrium – Income consumption curve and Price consumption curve – Hicksian decomposition of price effect into substitution effect and income effect – Demand curve for Normal, inferior and Giffen goods

Concept of Elasticities of demand – Measurement of various elasticities of demand – Distinction between slope of a demand curve and the elasticity of demand – Elasticity of supply – Measurement.

(Lectures 10 / Marks 12)

Unit – IV: Theory of Production

Production Function – The Law of variable proportions – Relationships among TP, AP, and MP.

Concept of Isoquant and Isocost – Finding the optimal employment of inputs – Ridge lines: the economic region of production – Output expansion path and homogeneous production function.

(Lectures 6 / Marks 6)

Unit – V: Theory of Cost

Cost analysis – Different concepts – Accounting and Economic costs, Opportunity cost, Private and social costs; Short run and long run costs.

(Lectures 6 / Marks 6)

Unit – VI: Market for Commodities

Revenue concepts under different market conditions: TR, AR, MR and relationship among AR, MR and elasticity of demand.

Perfect competition – Short run and long run equilibrium – Supply curve in the short run (shutdown and breakeven point concepts). Monopoly – Short run and long run equilibrium – Concept of Price discrimination. Monopolistic competition, Oligopoly Market – Short run and long run equilibrium.

(Lectures 12 / Marks 12)

Unit – VII: Factor Price Determination

Theory of Wage Determination - Backward Bending Supply curve of labour; Determination of Rent, Profit and Interest rate.

(Lectures 11 / Marks 8)

**Paper 1.5 Chg
Module- II
Indian Economic Environment
50 marks**

Unit – I: Indian Business Environment

(Lectures 4/Marks - 5)

Concepts: Economic Growth and Development; Meaning of Underdeveloped Economy; Basic Characteristics of Indian economy.

Unit – II: Overview of Indian Economic Trends

(Lectures 10/Marks - 10)

National Income: Concept - Methods of measurement of national income in Indian economy – Trend of National Income & per capita income – trend in structural composition of national income. Trend in occupational structure. Trends in Saving and Investment in Indian economy.

Unit – III: Issues in Indian Economy

(Lectures 10/Marks - 10)

Problems of Growth: Unemployment, Poverty, Inequality in Income distribution, Inflation, Concept of Parallel economy.

Unit – IV: Problems and Policies of Indian Economy

(Lectures 16/Marks- 15)

(A) Basic features of Indian agriculture: Low productivity; Land reform; Green Revolution; Rural Credit; Agricultural Marketing; Impact of New Agricultural Policy (NEP) on Indian Agriculture with special reference to Food Security.

(B) Industrial development during plan period; Industrial sickness; Industrial policies in the Pre-reform and Post-reform period in 1991.

(C) Globalization and the Policies of the Indian Economy under WTO Regime.

Unit – V: Indian Economic Planning

(Lectures 10/Marks- 10)

Concepts of Economic Planning; Objective and achievements of Indian Five-year Plans (Plan period I to XI). Import Substitution vs. Export Promotion Strategy.

Suggested Readings

- Pindyke and Rubinfeld, Micro Economics
- Gould & Ferguson, Micro Economic Theory
- Banerjee & Majumdar, Fundamentals of Business Economics
- Banerjee & Majumdar, Banijjik Arthaniti –o- Banijjik Paribesh(Bengali)
- Ratan Khasnabish & Ranesh Roy, Banijjik Arthaniti –o- Bharoter arthanaitik Paribesh(Bengali)
- Dutt & Sundaram, Indian Economy
- Mishra &Puri, Indian Economy
- Uma Kapila, Indian Economy
- Joydeb Sarkhel & Swapan Kr. Roy, Bharoter arthanaiti(Bengali)
- Bernheim & Whinston, Microeconomics, TMH

Common Paper for B.Com. Honours and General

Paper 1.6 Chg: BUSINESS MATHEMATICS AND STATISTICS

Module I [50 marks]

Unit

1. **Introduction:-** Definition of Statistics; Importance and scope of Mathematics and Statistics in business decisions; Limitations. [2 lectures / 2 Marks]
2. **Permutations** – Definition, Factorial notation; Theorems on permutation, permutations with repetitions; Restricted permutations. [4 lectures / 4 Marks]
3. **Combinations** – Definition; Theorems on combination; Basic identities; Restricted combinations. [4 lectures / 4 Marks]
4. **Set Theory:-** Definition of Set ; Presentation of Sets; Different types of Sets- Null Set , Finite and Infinite Sets , Universal Set , Subset , Power Set etc.; Set operations ; Laws of algebra of Sets . [6 lectures / 6 Marks]
5. **Logarithm** – Definition, Base and index of logarithm, general properties of logarithm, Common problems. [4 lectures / 4 Marks]
6. **Binomial Theorem** – Statement of the theorem for positive integral index, General term, Middle term, Equidistant terms, Simple properties of binomial coefficient. [4 lectures / 4 Marks]
7. **Compound Interest and Annuities:** Different types of interest rates; Concept of Present value and amount of sum; Types of annuities; Present value and amount of an annuity; including the case of continuous compounding; Valuation of simple loans and debentures; Problems relating to sinking funds. [8 lectures / 8 Marks]
8. **Collection, Classification and Presentation of Statistical Data** – Primary and Secondary data; Methods of data collection; Tabulation of data; Graphs and charts; Frequency distributions; Diagrammatic presentation of frequency distributions.

[8 lectures / 8 Marks]

9. **Measures of Central Tendency** – Common measures of central tendency – mean, median and mode; Partition values – quartiles, deciles, percentiles.

[6lectures / 6 Marks]

10. **Measures of Dispersion** – Common measures of dispersion – range, quartile deviation, mean deviation and standard deviation; Measures of relative dispersion.

[4 lectures / 4 Marks]

Paper 1.6 Chg: BUSINESS MATHEMATICS AND STATISTICS

Module II: [50 marks]

Unit

11. **Moments, Skewness and Kurtosis** – Different types of moments and their relationships; Meaning of skewness and kurtosis; Different measures of Skewness and Kurtosis.

[6 lectures / 6 Marks]

12. **Correlation and Regression** –Scatter diagram; Simple correlation coefficient; Simple regression lines; Spearman's rank correlation ; Measures of association of attributes.

[8 lectures / 8 Marks]

13. **Probability Theory** – Meaning of probability; Different definitions of probability; Conditional probability; Compound probability; Independent events; (excluding Bayes' Theorem).

[10 lectures / 10 Marks]

14. **Interpolation:-** Finite differences; Newton's forward and backward interpolation formula; Lagrange's interpolation formula.

[6 lectures / 6 Marks]

15. **Index Numbers:-** Means and types of index numbers ; Problems in construction of index numbers; Methods of construction of price and quantity indices; Tests of adequacy; errors in index numbers; Chain-base index numbers; Base shifting, splicing, deflating; Consumer price index and its uses.

[10 lectures / 10Marks]

16. **Time Series Analysis:-** Causes of variation in time series data; Components of time series ; Additive and multiplicative models; Determination of trend by semi average, moving average and least squares(linear, second degree and exponential) methods; Computation of seasonal indices by simple average, ratio-to-moving average, ratio-to trend and link relative methods; Simple forecasting through time series data.

[10 lectures / 810Marks]

Suggested Readings

- M. Raghavachari, Mathematics for Management, Tata McGraw-Hill
- S. Baruah, Basic Mathematics and its Application in Economics, Macmillan
- R. S. Bhardwaj, Mathematics for Economics and Business, Excel Books
- P. K. Giri and J. Bannerjee, Introduction to Business Mathematics, Academic Publishers
- R.G. D. Allen, Mathematical Analysis for Economists, Macmillan
- S. N. Dey, Business Mathematics and Statistics, Chhaya Prakashani

- J. Chakrabarti, Business Mathematics and Statistics, Dey Book Concern
- V. K. Kapoor Essentials of Mathematics for Commerce and Economics, Sultan Chand
- D.C. Sancheti and V. K. Kapoor, Business Mathematics, Sultan Chand and Sons
- Akhilesh and Balasubrahmanyam, Mathematics and Statistics for Management, (Vikash Publishing House Pvt.Ltd.)
- G. C. Beri, Business Statistics, Tata McGraw Hill
- J K Sharma, Business Statistics, Pearson Education
- Shenoy and Pant, Statistical Methods in Business and Social Science, Macmillan
- Goon, Gupta and Dasgupta, Fundamentals of Statistics, The World Press
- R. I. Levin and D.S. Rubin, Statistics for Management, Prentice Hall
- S.C.Gupta, Fundamentals of Statistics, Himalaya Publishing House
- N.G. Das, Statistical Methods in Commerce, Accountancy & Economics, TMH
- S.P.Gupta, Statistical Methods, Sultan Chand and Sons
- Priyotosh Khan, Statistics for Management, Economics and Computer, Everest Publishing House

**Common Paper for B.Com. Honours and General
Paper 2.1 Chg**

INFORMATION TECHNOLOGY AND ITS APPLICATION IN BUSINESS

MODULE I (THEORY): Marks: 50

Unit 1. Information Technology and Business – An Overview

Concepts of data, information and computer based information system. impact of information technology on business (business data processing, intra-organisational and inter-organisational communication by using network technology, business process and knowledge process outsourcing). Types of Information System - Transaction Processing System (TPS), Management Information System (MIS), Decision Support System (DSS), Knowledge Management System (KMS) - and their implementation at managerial levels (operational, tactical and strategic). Recent trends in information technology (brief ideas) – Enterprise computing, mobile communication, smart card. [8 lectures/ 8 marks]

Unit 2. Number System and Representation of Data in Computing System.

Data representation – bits, bytes, KB, MB, GB, TB. Concept of Number systems [Decimal, Binary, Octal and Hexadecimal], Binary arithmetic [addition, subtraction using 1's & 2's complement method], Computer Codes – BCD, EBCDIC, ASCII. [5 lectures/ 6 marks]

Unit 3. Fundamentals of Computer:- Components of digital computer and their functions (input unit, processing unit, output unit and storage unit).

Basic concepts of hardware & software. Relationship between hardware and software. Types of software: System software – Operating systems [characteristics & functions, uses of GUI based O.S. – LINUX AND WINDOWS], Programming Languages Translator – Assembler, Compiler and Interpreter, Utilities. Application software (basic ideas and examples).

[8 lectures/ 8 marks]

Unit 4. Data organization and Data Base Management System:-

- (a) *Data organization:* Character, field, record, file and database. Types of Data Processing Systems [Serial, Batch, Real-time, Online, Centralized, Distributed], File

Organizations [Sequential, Direct, Indexed-Sequential, Relative], Traditional file organization Vs. Database File organization.

- (b) *Data Base Management System*: Concept of Data Base Management System, Important terms of Database [including Entity, Attribute, Primary Key, Foreign Key, Candidate Key, Referential integrity, Table, Views, Data Dictionary]. Types of database [hierarchical, network and relational]. Basic ideas of Data Warehouse and Data mining. [10 lectures/ 10 marks]

Unit 5. Data Communication and Computer Network

(a) *Data Communication*: Concept of Data communications, Transmission Modes [Simplex, Half-Duplex, Full Duplex, Serial, Parallel, Synchronous, Asynchronous], Communication Media. Wireless and satellite communication, Wireless Broadband, WAP, Network components – Bridge, Switch, Router, Gateway

(b) *Computer Networks*: Network Concept, Types: LAN, WAN, MAN, VAN, SAN. Various Topologies: Bus, Star, Ring, Mesh, Tree. [8 lectures/ 8 marks]

Unit 6. Introduction to Internet

Meaning of Internet. Concepts of Internet Intranet and Extranet, IP Address (IPv4, IPv6), URL, Domain name System. Internet Protocols - TCP/IP, UDP, FTP, TELNET,(brief ideas only). HTML, DHTML AND XML. (concepts only). [5 lectures/ 4 marks]

Unit 7. Security Issues

Security threats - Virus, Trojan, Hacking, Spam. Security Measures - Firewall, Antivirus software, Digital Signature. Concept of data Encryption & Decryption. Symmetric and asymmetric encryption. Digital envelope. [6 lectures/ 6 marks]

Paper 2.1 Chg

INFORMATION TECHNOLOGY AND ITS APPLICATION IN BUSINESS

MODULE II (PRACTICAL) - MARKS: 50

Unit 1: Introduction to GUI based operating system – WINDOWS/LINUX [2 HOURS]

Unit 2: Word Processor [2 Classes/ 5 marks]

- Features of Word Processor.
- Formatting- Font, Paragraph, Page.
- Tables, Columns, Dropcap.
- Tools-Language Checking Tools, Mail Merge, Autocorrect.

Unit 3: Electronic Spreadsheet [3 Classes/ 8 marks]

Numerical Data Representation using formatting features for cell, Font, Column, Row, Work Sheet.

- FUNCTIONS-Mathematical, Logical, Financial.
- GRAPHS-LINE, BAR, AREA, PIE etc.
- Linking data using Cell References.
- Sheet Reference.
- Goal Seek and Scenario.

[14 Classes/ 15 marks]

Unit 4: Data Base Management System

- Creation of Tables, Defining Primary key.
- Multiple Table Handling – Defining Relationship, Foreign Key.
- Generating simple and Conditional Queries. Types of queries [Update, Delete, Append]
- Designing Forms and Reports.

[12 Classes/ 10 marks]

Unit 5: Financial Accounting Package and its Implementation (TALLY / ACE)

[9 Classes/ 12 marks]

Suggested Readings:

- Turban, Rainer and Potter, Introduction to Information Technology, Wiley
- ITLES, Introduction to Information Technology, Pearson
- Sinha & Sinha, Fundamentals of Computers, BPB Publication
- Ramesh Behl, Information Technology for Management, TMH

Common Paper for B.Com. Honours and General

Paper 2.2 Chg: PRINCIPLES OF MARKETING & E-COMMERCE

MODULE I : Marks – 50

Principles of Marketing

Unit – I

Marketing: meaning, importance, marketing concepts – traditional vs. modern; analysis of marketing environment – demographic, political, economic, socio-cultural, natural, technological, and legal; growing relevance of marketing in India; impact of global marketing
(10 classes / 10 marks)

Unit – II

Market Segmentation: concept, target market, bases of market segmentation - factors influencing choice of bases, ideas about customer base, market share, and niche market
(8 classes / 8 marks)

Unit – III

Marketing Mix: concept; 4 Ps vs. 4 Cs

Product: meaning, product planning, product mix, product policy, product line decisions, product differentiation; branding; packaging; labelling; product life cycle; new product development process
(8 classes / 8 marks)

Unit – IV

Pricing: importance; factors influencing pricing; pricing policies and strategies; service product pricing

Promotion: elements of promotion mix; roles of advertising; personal selling; sales promotion; public relations

(8 classes / 8 marks)

Unit – V

Marketing Channels: types; channel design decisions

Logistics Management: objectives; decisions

Marketing Information System (MIS): concept, components

Marketing Research: meaning, techniques

(8 classes / 8 marks)

Unit – VI

Retail Management: meaning, functions, types, identifying consumers, developing merchandise plans; pricing and promotional strategies; retailing in India; trends in international retailing

(8 lectures/ 8 marks)

Suggested Readings

- Kotler, P., Marketing Management, Pearson Education, New Delhi
- Ramaswamy and Namakumari, Marketing Management, Macmillan, New Delhi
- Stanton, Etzel et al, Fundamentals of Marketing, McGraw Hill, New York
- Baines, Paul, Chris, Fill, Page, Kelly, Marketing, Oxford University Press, Mew Delhi
- Saxena Rajan, Marketing Management, Tata McGraw Hill, New Delhi
- Panda, T. K., Marketing Management, Excel Books, New Delhi
- Raju M. S., Rao, J V P, Fundamentals of Marketing, Excel Books, New Delhi
- Madaan KVS., Fundamentals of Retailing, Tata McGraw Hill, New Delhi
- Kazmi, Marketing Management, Excel Books

Paper 2.2 Chg: PRINCIPLES OF MARKETING & E-COMMERCE

MODULE II

E-COMMERCE 50 MARKS

Unit 1.Overview of E-Commerce

Meaning. Importance in the context of today's business. Advantages of e-commerce (as compared with traditional system of commerce). E-commerce and e-business. Internet and its relation to e-business. Mobile Commerce-Basic Idea. [5 lectures/6 marks]

Unit 2.Categories of E-Commerce (Models)

Business to Consumer (B to C) model – Basic idea, major activities, major challenges. Models of B to C [portals, e-tailer, content provider, transaction broker] Business to Business (B to B) model – Basic idea, major activities, types of B to B market [independent, buyer oriented, supplier oriented, vertical and horizontal e-market place]. Other models – Business to Government (B to G), Consumer to Consumer (C to C), Consumer to Business (C to B). [8 lectures/12 marks]

Unit 3.E-CRM

Concept & definition, features, Goals of E-CRM business framework, Three phases of E-CRM, Types of E-CRM, Functional Components of E-CRM, Strategies for E-CRM solutions. [5 lectures/8 marks]

Unit 4. E-Payment

Types of E-Payment – Payment card [credit card and debit card], Electronic or digital cash. Electronic or digital wallet. Stored value card [smart card]. Basic idea of online banking [core banking solution or CBS] [4 lectures/6 marks]

Unit 5. Introduction to ERP: Concept & definition, features, major characteristics, levels of ERP, Benefits of ERP, Enterprise potentials of ERP, Modules of ERP, Phases of ERP implementation, Limitations of ERP. [6 lectures/10 marks]

Unit 6. Supply Chain Management: Concept & definition, features, Types of supply chain, E-Supply chain planning (Components), E-supply chain fusion (Process).

[6 lectures/8 marks]

Suggested Readings

- Gary Schneider, Electronic Commerce, Thomson Publishing.
- Pandey, Srivastava and Shukla, E-Commerce and its Application, S. Chand
- P.T. Joseph, Electronic Commerce – An Indian Perspective, P.H.I
- Bharat Bhaskar, Electronic Commerce, TMH
- Turban, King, Viehland & Lee, Electronic Commerce- A Managerial Perspective, Pearson.
- Ravi kalakota & A.B. Whinston, Electronic Commerce- A Manager's Guide, Pearson.
- Laudon & Traver, e-commerce – Business, Technology, Society. Pearson

For Second Year Honours Students only

Paper Common to all B.Com. Honours Courses

Paper 2.3 Ch: ECONOMICS – II

Module – I (50 Marks)

Macroeconomics

Unit – I:

Macroeconomics – scope and basic concepts.

[2 classes / 2 marks]

Unit – II:

National Income Accounting - Concepts and measurement of GDP, GNP, NNP, NI and DPI - Circular flow of income – Real and Nominal GDP –Implicit deflator. [8 classes / 6 marks]

Unit – III:

Theory of Equilibrium Income Determination: Simple Keynesian Model; Consumption, saving and investment functions – National income determination; Investment and Government expenditure multipliers [12 classes / 12 marks]

Unit – IV:

Commodity market and Money market equilibrium; Derivation of IS and LM curves –Shifts of IS and LM curves-equilibrium in IS-LM model – Effectiveness of monetary and fiscal policies .

[12 classes / 12 marks]

Unit – V: Money and Inflation

Concept of demand for and supply of money. Quantity theory of money and Keynesian theory of demand for money. Measures of money supply – High powered money – Money multiplier. Concept of Inflation – Demand-pull and cost-push theories of inflation – Monetary and fiscal policies to control inflation – Instruments, objectives and limitations.

[16 classes / 18 marks]

Suggested Readings

- W. H. Branson, Macro Economic Theory and Policy
- Joydeb Sarkhel, Macro Economic Theory
- Banerjee & Majumdar, Fundamentals of Business Economics
- Dornbusch, Fischer & Startz, Macroeconomics, TMH

Module - II (50 Marks)

Paper 2.3 Ch: Advanced Business Mathematics

Unit

1. **Functions:** Definition of functions; Classification of functions; Different types of functions(excluding Trigonometrical functions); Bounded functions; Monotonic functions; Even and odd functions; Parametric form of a function; Composite functions; Graphical representation of functions. [6 lectures / 4Marks]
2. **Limit and Continuity :** Elementary ideas of limit and continuity through the use of simple algebraic functions. [6 lectures / 6 Marks]
3. **Differentiation:** Derivative and its meaning; Rules of differentiation; Geometrical interpretation; Significance of derivative as rate measure; Second and higher order derivatives; Partial derivatives up to second order; Homogeneity of function and Euler's theorem; Total differentials; Differentiation of implicit function with the help of total differentials. [8 lectures / 8 Marks]
4. **Applications of Derivative:** Maximum and minimum values ; Cost function ; Demand function ; Profit function;Increasing and decreasing functions ; Rate measure Applied problems on Average cost (AC), Average variable cost (AVC), Marginal cost (MC), Marginal revenue (MR). [8 lectures / 8 Marks]
5. **Integration:** Integration as anti-derivative process; Standard forms; Integration by substitution, by parts and by use of partial functions; Definite integral; Finding areas in simple cases; consumers and producers surplus; Nature of commodities learning curve. [8 lectures / 8 Marks]
6. **Determinants:** Determinants of a square matrix up to third order ; Elementary properties of determinants ; Minors and Co-factors ; Adjoint of a determinant ; Cramer's Rule (not more than three variables). [6 lectures / 6 Marks]
7. **Matrix:** Definition of matrix ; Types of matrices ; Operations on matrices (addition, subtraction, multiplication); Adjoint of a matrix; Inverse of a matrix ; Solution of a system of linear equations by matrix inversion method (not more than three variables). [8 lectures / 8Marks]

Suggested Readings

- S. Baruah, Basic Mathematics and its Application in Economics, Macmillan
- R. S. Bhardwaj, Mathematics for Economics and Business, Excel Books
- P. K. Giri and J. Bannerjee, Introduction to Business Mathematics, Academic Publishers
- R. G. D. Allen, Mathematical Analysis for Economists, Macmillan
- M. Raghavachari, Mathematics for Management, TMH
- F. S. Budnick, Mathematics for Business, Economics and Social Science, TMH
- A.K. Maiti & Tapas Kr. Pal, Banijjik Ganit –o- Parisankhan (Bengali &English)
- Arup Ratan Kundu, Mathematics for Management - An Introduction, TMH

Paper Common to all B.Com. Honours Courses

**Paper 2.4 Ch: FINANCIAL ACCOUNTING – II
(MODULE-I ; 50 marks)**

Page-3/all Hons

Unit	Topic	Details	Marks allotted	No. of lectures
1	Partnership accounts-II	Accounting for dissolution of firm – insolvency of one or more partner, consideration of private estate and private liabilities. Piecemeal distribution – surplus capital basis; maximum possible loss basis.	15	15
2	Branch accounting	Concept of Branch; different types of Branches. Synthetic method – preparation of Branch account. Preparation of Branch Trading and P/L account. (at cost & at IP) – normal and abnormal losses. Analytical method – preparation of Branch Stock, Adjustment etc A/C (at cost & at IP) – normal & abnormal losses Independent branch – concept of wholesale profit and basic idea of incorporation	10	14
3	Hire purchase and Instalment payment system	Meaning; difference with Installment payment system; Recording of transaction in the books of buyer – allocation of interest – use of Interest Suspense a/c – partial and complete repossession Books of Seller – Stock and Debtors A/C (with repossession) Books of Seller – H.P. Trading A/C (with repossession) Concept of operating and financial lease – basic concept only.	10	14
4	Departmental accounts	Concept, difference with Branch, objective of preparation of departmental accounts apportionment of common cost; Preparation of Departmental Trading and P/L account, Consolidated Trading and P/L account; inter departmental transfer of goods at cost, cost plus and at selling price and elimination of unrealized profit.	10	8
5	Introduction to Accounting Standard	Financial accounting standards: concept, benefits, procedure for issuing accounting standards in India. Salient features of Accounting Standard (AS): 1 (ICAI). Need for a global standard, IFRS (concept only).	5	5
			50	56

Paper Common to all B.Com. Honours Courses
Paper 2.4 Ch: FINANCIAL ACCOUNTING – II
(MODULE-II : 50 marks)

Unit	Topic	Details	Marks allotted	No. of lectures
1	Company – Introduction And Accounting for Shares & debentures	<ul style="list-style-type: none"> • Meaning of Company; Maintenance of Books of Accounts; Statutory Books; Annual Return • Issue of Shares – issue, forfeiture, reissue, issue other than in cash consideration and issue to the promoters; Pro-rata issue of shares. Issue of debentures. Sweat equity. • Right and Bonus Share – Rules, Accounting • Alteration of Share Capital; Conversion of fully paid shares into stock; Equity Shares with different rights. • Underwriting of shares and debentures: Rules; Determination of Underwriters Liability – with marked, unmarked & firm underwriting; Accounting. • Employee Stock Option Plan – meaning; rules; Vesting Period; Exercise Period. Accounting for ESOP. Meaning and Accounting of ESPS. 	25	30
2	Buy back and Redemption of preference shares	<ul style="list-style-type: none"> • Buy Back of Securities – meaning, rules and Accounting. • Redemption of Preference Shares – Rules and Accounting (with and without Bonus Shares) 		
3	Redemption of debenture	Redemption of Debenture – Important Provisions, Accounting for Redemption: by conversion, by lot, by purchase in the open market (cum and ex-interest), held as Investment and Use of Sinking Fund	10	10
4	Company Final Accounts	Introduction to Schedule VI; Treatment of Tax; Rules for and Determination of Managerial Remuneration; compulsory transfer to reserve, Dividend and applicable tax (out of current profit, out of past reserve); Preparation of Profit & Loss A/C and Balance Sheet. (tax on net profit without recognizing deferred tax)	15	15
			50	55

**** Note: AS 22 is not required to be followed; however, it is suggested that tax is to be considered as an expense as per AS. Hence, it is proposed that tax is to be calculated on the net profit before tax and not on taxable income – further, deferred tax should not be recognized.**

Suggested Reading

- Sukla, Grewal, Gupta: Advanced Accountancy Vol. I & II, S Chand
- R. L.Gupta & Radheswamy, Advanced Accountancy Vol. I & II, S. Chand
- Maheshwari & Maheshwari, Advanced Accountancy Vol. I & II, Vikash Publishing House Pvt. Ltd.
- Sehgal & Sehgal, Advanced Accountancy Vol. I & II, Taxman Publication
- L.S.Porwal, Accounting Theory, Tata Mcgraw Hill
- Gokul Sinha, Accounting Theory & Management Accounting,
- B. Banerjee, Regulation of Corporate Accounting & Reporting in India, World Press.

- Frank Wood, Business Accounting Vol 1&II, Pearson
- Tulsian, Financial Accounting, Pearson
- Accounting Standards issued by ICAI

Paper Common to all B.Com. Honours Courses

**PAPER 2.5 Ch: DIRECT & INDIRECT TAXATION
MODULE-1: 50 marks**

Unit 1: a) Basic Concepts and Definitions under IT Act (L 7 / M 10)
Assessee, Previous year, Assessment year, Sources of income, Heads of income, Gross total income, Total income, Tax Evasion, Tax avoidance, Tax planning

b) Residential Status and Incidence of Tax
Residential status of all persons except company

c) Incomes which do not form part of Total Income
Except sections 10A, 10AA, 10B, 10BA

d) Agricultural Income
Definition, determination of agricultural and non-agricultural Income, assessment of tax liability when there are both Agricultural and Non-agricultural income

Unit 2: Heads of Income and Provisions governing Heads of Income (L 14 / M 10)
Salaries, Income from House property

Unit 3: Heads of Income and Provisions governing Heads of Income

a) Profits and Gains from Business and Profession
Special emphasis on sec 32, 35, 35D, 36, 37, 40A(2), 40A(3), 43B
(Excluding presumptive taxation)

b) Capital Gain
Meaning and types of capital assets, basic concept of transfer, cost of Acquisition, cost of improvement and indexation, computation of STCG and LTCG, exemptions u/s 54 and 54F, taxability of STCG and LTCG

c) Income from Other Sources
Basic concepts excluding deemed dividend (L15 / M 10)

Unit 4: a) Income of other Persons included in Assessee's Total Income
Remuneration of spouse, income from assets transferred to spouse and Son's wife, income of minor

b) Set off and Carry Forward of Losses
Mode of set off and carry forward, inter source and inter head set off, Carry forward and set off of losses u/s 71B, 72, 73, 74, 74A

(L 9 / M 10)

c) Deductions from Gross Total Income
Basic concepts, deductions u/s 80C, 80CCC, 80CCD, 80CCE, 80CCF, 80D, 80DD, 80DDB, 80E, 80G, 80GG, 80GGA, 80GGC, 80U

Unit 5: Computation of Total Income and Tax Payable

- Rate of tax applicable to different assesses (except corporate assessee)
- Computation of tax liability of an individual and firm

(L 5 / M 10)

PAPER 2.5 Ch: DIRECT & INDIRECT TAXATION
MODULE 2 – 50 Marks

Unit 1: TAX MANAGEMENT

a) Provision for Filing of Return

Date of filing of return, relevant forms of return, different types of returns, return by whom to be signed, PAN, TAN

b) Assessment of Return

Self assessment, summary assessment u/s 143(1), scrutiny assessment u/s 143(3) and best judgment assessment u/s 144

c) Advance Tax

When liable to pay, due dates and computation of advance tax (excluding Corporate assesses)

d) Interest

Interest u/s 234A, 234B, 234C, (simple problems on interest)

e) TDS

TDS from salary, lottery, horse racing, interest on securities

(L 15 / M 15)

Unit 2: WEALTH TAX

Definitions, incidence of tax, basic concepts of assets, exempted assets, deemed assets and debt owed, computation of net wealth and tax payable (simple problem)

(L 10 / M 10)

Unit 3: CENTRAL SALES TAX, 1956

Definitions, incidence and levy of tax, exemption and exclusion, determination of turnover and tax payable, registration of dealer, forms under CST

(L 11 / M 10)

Unit 4: WB VAT ACT, 2003

Basic concepts, features, advantages and disadvantages of vat, rate of tax, definitions, input tax, output tax, input tax credit, incidence and levy of tax, determination of tax payable, registration of dealer

(L 11 / M 10)

Unit 5: CENTRAL EXCISE ACT, 1944

Basic concepts, conditions of excise liability, taxable event of excise duty, definitions of goods, manufacture, excisable goods, factory, broker or commission agent, wholesale dealer, sale or purchase

(L 3 / M 5)

If any new legislations/provisions are enacted in place of the existing legislations/provisions, the syllabus will accordingly include such new legislations/provisions in place of existing legislations/provisions with effect from such date as prescribed by CALCATTA UNIVERSITY. Similarly if any existing provision becomes redundant due to changes, it will be left out of the syllabus.

Suggested Readings

- Singhania, V. and Singhavia, M., Students' guide to Income Tax, Taxmann
- Lal & Vashist, Income Tax and Central Sales Tax, Pearson
- Ahuja & Gupta, Systematic Approach to Income Tax, Bharat
- V.S. Datey, Indirect Taxes Laws and Practice, Taxmann
- Bangar and Bangar, Students' guide to Indirect Tax, Aadhya Prakashan

Paper Common to all B.Com. Honours Courses

Paper 2.6 Ch: COST & MANAGEMENT ACCOUNTING

Module I : 50 MARKS

Unit 1

Introduction: Definition of Costing, Cost Accounting and Management Accounting. Objectives of Cost Accounting; Importance of Cost Accounting to Business Concern. Relationship between Cost Accounting, Financial Accounting, Management Accounting and Financial Management; Advantages of a Cost Accounting system, Installing a Cost Accounting System, Essentials of a good Cost Accounting System.

Cost concepts, terms and classification of costs: Cost, Cost object, Cost units and Cost Centres, Types of costs, classification of costs, cost sheet (introduction only), total costs and unit costs. **Costing Methods and Techniques** (introduction only).
(8 classes/6 marks)

Unit 2 Material Costs

- Purchase of materials:* Purchasing needs and organisation, purchase procedure, documentation, material costs (direct and indirect).
- Storage of materials:* Need for storage, location and types, functions of a storekeeper, requisition, receipt, issue and transfer of materials, storage record, accounting for materials cost.
- Materials control:* Organisation; Tools: Just-in-Time Purchase; various stock levels, Economic Ordering Quantity and ABC Analysis; Periodic Inventory, Perpetual Inventory, Physical verification; Discrepancies in stock and their treatment.
- Methods of Pricing Material Issues

Various methods of pricing materials issues; Advantages and disadvantages of each method; Comparative analysis; Stock Valuation for Balance Sheet.

Treatment of Normal and Abnormal Loss of Materials; Accounting and control of Waste, Scrap, Spoilage and Defectives.

[15 classes / 12 marks]

Unit 3

Employee Cost- Introduction, Recording labour cost: Attendance and payroll procedures (Time-keeping, Time-Booking, Payroll procedure, Payment of wages, Overview of statutory requirements), Idle time (causes and treatment in Cost Accounting), Overtime (its effect and treatment in Cost Accounting), Labour turnover-Causes and methods of calculating labour turnover; cost of labour turnover.

Incentive Systems –Main Principles for sound system of wage incentive schemes; labour utilisation; Distinction between direct and indirect labour cost; System of Wage Payment and Incentives; System of Incentive Schemes for Indirect Workers; Component of wages cost for costing purpose; Absorption of wages; Efficiency rating procedures.

[15 classes / 12 marks]

Unit 4

Overhead

(a) *Introduction* Definition, Classification of Overhead- Element-wise, Functional and Behavioural; Need for of classifying overhead into fixed and variable; various types of overheads.

(b) *Manufacturing Overheads:* Allocation and apportionment of Overhead; Absorption of Overhead: various methods and their application; Treatment of under absorption/over absorption of overheads; Basic concepts of different Capacities.

(c) *Activity Based Costing:* Problems of traditional costing; meaning of Activity Based Costing; cost analysis under ABC; advantages and disadvantages; factors influencing application of ABC; installation of ABC.

(d) Preparation of Cost Sheet (advanced level)

[20 classes / 20 marks]

Paper 2.6 Ch: COST & MANAGEMENT ACCOUNTING

Module II: 50 Marks

Unit 5

Cost Book-keeping

(1) Non-Integrated System

Meaning & Features; Ledgers Maintained; Accounts prepared; General/Cost Ledger Adjustment Account; Meaning of Closing Balance in Various Accounts; Disadvantages.

(2) Integrated System

Meaning , Features and Advantages.

(3) Reconciliation

Need for reconciliation (only under Non integrated System); Items causing differences between Cost and Financial Profits; Memorandum Reconciliation Statement / Account

[10 classes / 10 marks]

Unit 6

Job Costing (Job cost cards and databases, Collecting direct costs of each job, Attributing overhead costs to jobs, Applications of job costing). **Batch Costing**

Contract Costing - Progress payments, Retention money, Escalation clause, Contract accounts, Accounting for material, Accounting for plant used in a contract, Contract Profit and Balance sheet entries.

Service Costing and Output Costing- Introduction; Motor Transport Costing, Hotel Costing (Staff Canteen Costing, Hospital Costing, Boiler House Costing – brief idea only). **Single or Output] Costing** [10 Classes / 10 Marks]

Unit 7

Process Costing : Meaning, Features, Process vs Job Costing, Principles of cost ascertainment for Materials, Labour & Overhead; Normal loss, Abnormal loss and gain and preparation of process accounts.

Need for Valuation of WIP, **Equivalent Production (units)** and preparation of process and other relevant accounts valuing WIP under average method and FIFO method (simple cases).

Inter-process profit (simple cases)- Meaning, Advantages and Disadvantages and determination of stock value for the purpose of balance sheet [10 Classes / 10Marks]

Unit 8

CVP Analysis Introduction; CVP Assumptions and Uses; Break-Even Analysis: BE Point and Margin of Safety; Graphical presentation of CVP Relationship; Profit Graph

Marginal Costing and Management Decisions – Marginal Costing vis-à-vis Absorption Costing; Marginal Costing Techniques; Marginal Cost and Product Pricing; Product Mix and Make or Buy Decisions, Shut Down Decisions (with simple type of problems on different areas of decision making) [14 Classes / 10 Marks]

Unit 9

Budgetary Control: Budget and Budgetary Control; The budget manual, principal budget factor, preparation and monitoring procedures, preparation of functional budgets (Production, Sales, Materials), cash budget, (idea of master budget), flexible budget.

Standard Costing. Standard Costs and Standard Costing; Uses, & Importance. Differences with Budgetary Control, Preliminary Steps. Classification of Standards. Analysis and computation of Materials, Labour and Overhead Costs Variances (elementary level). [16 Classes / 10 Marks]

Suggested Readings

- Horngren, Foster, Datar, et al., Cost Accounting,- A Managerial Emphasis, Pearson

- B.Banerjee, Cost Accounting, PHI
- Jawahar Lal & Seema Srivastava, Cost Accounting, TMH
- M.Y.Khan & P.K.Jain, Management Accounting, TMH
- R.Anthony, Management Accounting, Taraporewala
- Colin Drury, Management & Cost Accounting, Chapman & Hall
- K.S.Thakur, Cost Accounting, Excel Books
- Satish Inamdar, Cost & Management Accounting, Everest Publishing House
- Atkinson, Management Accounting, Pearson
- Bhattacharyya, Ashish K., Cost Accounting for Business Managers, Elsevier
- Ravi M Kishore, Cost and management Accounting, Taxmann

THIRD YEAR
B.COM. HONOURS IN ACCOUNTING AND FINANCE
Paper 3.1 HA: FINANCIAL ACCOUNTING – III
(MODULE-I) - 50 Marks

Unit	Topic	Details	Marks allotted	No. of lectures
1	Investment Accounts	Maintenance of Investment Ledger; Preparation of Investment Account (transaction with brokerage, STT, cum & ex-interest), Valuation of Investment under FIFO and Average Shares, Bonus Shares and Sale of Right). Relevant Accounting Standard.	10	16
2	Business Acquisition and Conversion of partnership into limited company	<ul style="list-style-type: none"> • Profit/ loss prior to incorporation; Accounting for Acquisition of business. • Conversion of Partnership into Limited Company – with and without same set of books • Amalgamation of firms, accounting in the books transferor and transferee firm. 		
3	Company Merger And Reconstruction	<ul style="list-style-type: none"> • Amalgamation, Absorption and Reconstruction– Meaning; relevant standard and meaning of different terms, Accounting in the books of Transferor Company. Accounting in the books of Transferee (both for amalgamation in the nature of Merger and of Purchase); inter-company transactions (including inter-company share holding). • Internal reconstruction – meaning, provisions and Accounting, Surrender of Shares for redistribution; preparation of Balance Sheet after reconstruction 	15	18
4	Valuation	<p>Goodwill – valuation using different methods,i.e., Average Profit, Super Profit, Capitalisation and Annuity.</p> <p>Shares – Valuation using different methods: Intrinsic, Earnings, Dividend Yield, Earnings-Price, Cum-div and Ex-div, Majority and Minority view and Fair Value</p>	10	10

5	Holding Company	<p>Meaning of Holding Company & Subsidiary Company; relevant standard; Consolidation of Balance Sheets of Parent & Subsidiary (only one); Minority Interest – Basic principles and preparation of CBS; CBS with loss balance of Subsidiary</p> <p>Treatment for: Revaluation of Assets of Subsidiary, Intra-group Transactions, Holding of different securities.</p> <p>Consideration of dividend paid or proposed by Subsidiary in CBS; Bonus Shares issued or proposed to be issued by Subsidiary (excluding shares acquired on different dates by the Parent company, chain and cross holding)</p>	15	16
			50	54

**Paper 3.1 HA : FINANCIAL ACCOUNTING – III
(MODULE-II: 50 marks)**

Unit	Topic	Details	Marks allotted	No. of lectures
1	Introduction to Accounting Theory	Concept of accounting theory; relation with practice; GAAP; Capital – capital maintenance concepts, relation with income; Limitations of Historic Cost accounting; Introduction to Fair Value accounting	10	10
2	Introduction to Financial Statements	<ul style="list-style-type: none"> • Nature and Component of Financial Statement; Meaning and Need for FSA, Traditional & Modern approaches to FSA, Parties interested in FSA. • Comparative Statement – meaning, preparation, uses, merits and demerits • Common-size Statement - meaning, preparation, uses, merits and demerits • Trend Analysis - meaning, determination, uses, merits and demerits 	20	20
3	Accounting Ratios for FSA	<p>Meaning, objective, Classification of Accounting Ratios, Advantages & Limitations</p> <p>Preparation of Financial Statement and Statement of Proprietor's Fund from the given Ratios.</p> <p>Computation, Analysis and Interpretation of important ratios for measuring – Liquidity, Solvency, Capital Structure, Profitability and Managerial Effectiveness.</p>		
4	Fund Flow Statement	Concept of fund, meaning, nature, various sources, advantages & limitations of Fund Flow Statement and its preparation.	20	20
5	Cash Flow Statement	Meaning, objectives, difference with Fund Flow Statement; activity classification and preparation and presentation as per AS-3		
			50	50

Suggested Reading

- Sukla, Grewal, Gupta: Advanced Accountancy Vol. II, S Chand
- R. L.Gupta & Radheswamy, Advanced Accountancy Vol. II, S. Chand
- Maheshwari & Maheshwari, Advanced Accountancy Vol. II, Vikash Publishing
- Sehgal & Sehgal, Advanced Accountancy Vol. I II, Taxman Publication
- Hanif & Mukherjee, Corporate Accounting, TMH
- L.S.Porwal, Accounting Theory, Tata Mcgraw Hill
- Gokul Sinha, Accounting Theory & Management Accounting,
- B. Banerjee, Regulation of Corporate Accounting & Reporting in India, World Press.
- Frank Wood, Business Accounting Vol II, Pearson
- V.K.Goyal, Corporate Accounting, Excel Books
- Accounting Standards issued by ICAI
- Lev, Financial Statement Analysis-a new approach, Prentice Hall
- Foster G, Financial Statement Analysis, Prentice Hall
- White, Sondhi& Fred, Analysis and Use of Financial Statement, John Wiley
- Bernstein & Wild, Financial Statement Analysis; theory, application & interpretation, Mcgraw Hill
- Ormiston, Understanding Financial Statement, Pearson
- Bhattacharyya, Asish K., Introduction to Financial Statement Analysis, Elsevier

Paper for B.Com. Hons. In Accounting & Finance

Paper 3.2 HA: AUDITING

MODULE I - 50 marks

Unit I: Introduction

(Classes-12 / 10 Marks)

- Definition-Nature-Scope and Objectives of Independent Financial Audit-Limitation.
- Basic Principles Governing an Audit-Relation between Accounting and Auditing.
- Errors and Fraud-Concepts, Means of doing Fraud, Purpose- Conditions which increase the Risk of Fraud and Error-Auditor's responsibility towards detection and reporting.
- Classification-Objective wise(Internal and Independent Financial audit), Periodicity wise (Periodical, Continuous, Interim, Final, Limited Review) Technique wise (Balance sheet, Standard, Systems, EDP), Coverage wise (Complete, Partial), Organization structure wise (Statutory, Non- statutory), Specific Matter Wise (Cost, Management, Secretarial, Tax, Environment, Human Resource, Social, Operational, Propriety, Stock, Public Deposit, Corporate Governance, Cash Flow, Compliance, Performance etc.).

Unit 2: Auditing Procedures and Techniques

(Classes- 10 / 10 Marks)

- Auditing Engagement-Audit Planning-Audit Programme.

- Documentation-Audit Working Papers, Ownership and Custody of Working Papers-Audit File(Permanent, Current) – Audit note Book- Audit Memorandum.
- Audit Evidence-Concept, Need, Procedure to obtain Audit Evidence, Sources and Reliability, Methods.
- Preparation Before Commencement of a New Audit.

Unit 3: Internal Control and Internal Audit (Classes 10 / 10 Marks)

- Internal Check-Definition, Objective, Preparation of check-lists.
- Internal Control-Definition, Objectives, Evaluation, Internal control in Computerized Environment, ICQ and its Preparation, Comparison with Internal Check.
- Internal audit-Definition, Objectives, Regulatory Requirements(Companies Act), Reliance by Statutory Auditor on Internal Auditor's Work.
- Audit Risk- Concept, Types and their Assessment Procedure.

Unit 4: Audit Sampling and Analytical Procedure (Classes-8 / 10 Marks)

- Concept, Need, and Types of Sampling- Sampling Risk-Stages in Audit
- Sampling.
- Test Checking-Auditing in Depth and Cut-Off checking.
- Analytical Procedure- Nature and Application of Analytical Procedure- Tools and Techniques of Analytical Procedure- Extent of Reliance on Analytical Procedure- Use of analytical procedure for Substantive Testing.

Unit 5: Audit (Vouching and Verification) of Different Items (Classes 10 / 10 Marks)

- Vouching- Meaning, Objectives-Vouching of Different Items (Receipts and
 - Payments Related).
- Verification – Concept, Objectives – Audit of Share Capital, Loans(Secured and Unsecured), Fixed assets (Building, Plant and Machinery, Loans and Advances, Investment, Goodwill, Copy Right, Patent Right Inventories, Debtors), Creditors, Subsequent Events, Preliminary Expenditures , Directors' Remuneration etc.

*** Topics to be studied with reference to Relevant Standards on Auditing and Accounting including Applicable Indian Financial Reporting Standards.*

Paper 3.2 HA: AUDITING
MODULE II – 50 marks

Unit 1: Company Audit (Classes 12 / Marks 12)

- Qualification, Disqualification, Appointment, Removal, Remuneration of Auditors.
- Audit Ceiling-Status, Power, Duties and Liabilities of auditors.
- Branch Audit-Joint Audit- Special Audit.
- Maintenance of Books of Account –Related Party Disclosures- Segment Reporting.
- Divisible Profit, Dividend and Depreciation (Companies Act, Standards on Accounting, Legal Decisions and Auditor's Responsibility).
- Representations by Management-Contents of Annual Report(A Brief Idea).

Unit 2: Audit Report and Certificate (Classes 10 / 10)

- Definition-Distinction between Report and Certificate- Types of Reports/Opinion

- (Clean, Qualified, Disclaimer, Negative and Piecemeal)
- Contents of Audit Report(As per Companies Act and Standards on auditing).
- True and Fair View (Concept and Guiding Factors)- Materiality(Concepts and Relevance)- Limited Review- Disclosures.
- Certificate on Corporate Governance- Cash Flow Statement Reporting.

Unit 3: Audit of Different Institutions

(Classes 10 / Marks 10)

- Banks- Legislation Relevant to Audit Of Banks, Approach to Bank Audit, Internal Control Evaluation, Non-Performance Assets(Concept , Provisions), Long Form Audit Report.
- Insurance Companies- Legislation Relevant to Audit of Insurance companies(Life And General Insurance), Review of Internal Control, Audit Report(Matters as per IRDA).
- Educational Institutions and Hospital
- Features and Basic Principles of Government Audit-Local Bodies and Non- Profit Seeking Organizations(including NGOs).
- Comptroller and Auditor General and its Constitutional Role.

Unit 4: Investigation

(Classes 6 / Marks 8)

- Meaning, Purpose- Distinction between Investigation and Auditing Approach to
- Investigation- Types of Investigations.
- Assessing a Business (Due Diligence Review, Valuation).
- Investigations to Detect Fraud, Misappropriations and Defalcations- Investigations with respect to Business Combinations.

Unit 5: Other Thrust Areas

(Classes 12 / Marks 10)

- Cost Audit- Concepts, Objectives, Advantages, Relevant Provisions of Comp. Act.
- Management Audit- Tax Audit- Systems Audit- Social Audit- Environment Audit
- Energy Audit- Forensic Audit-Peer review (Concepts, Objectives and Regulatory Requirements).
- Ethics in Auditing – Auditor’s Independence.
- Auditing in CIS Environment.
- Standards on Auditing (Concepts, Purpose and Present Position as to Number and Title as issued by ICAI).

**** Topics to be studied with reference to Standards on Auditing and Accounting including Applicable Indian Financial Reporting Standards.*

Suggested Readings

- Gupta, Kamal, Contemporary Auditing, TMH
- Tandon, B.N., Principles of Auditing, S. Chand & Co.
- Sharma, T.R., Auditing Principles & Problems, Sahitya Bhavan, Agra
- Spicer & Pegler, Practical Auditing
- Woolf, Emile, Auditing Today
- Basu, Sanjib Kumar, Fundamentals of Auditing, Pearson
- Auditing Assurance Standards and Guidelines issued by ICAI

Paper for B.Com. Hons. In Accounting & Finance
PAPER 3.3 HA
Indian Financial System and Financial Market Operations
MODULE –1 Full Marks - 50
Indian Financial System

Unit – I: Financial System

(No.of Lec.-5) (Marks- 5)

Meaning and significance; Role of finance in an economy, Components (instruments, markets, etc.); kinds of finance – Rudimentary finance, Direct and Indirect finance; Role of financial intermediaries. The structure of Indian Financial System

Unit – II: Money and Indian Banking System

(No.of Lec.-15) (Marks- 15)

Functions; Alternative measures to money supply in India – Their different components; Commercial Banks – Importance and functions; Structure of Commercial banking system in India; Distinction between Commercial and Central bank; Credit Creation Process of Commercial banks; High powered money – meaning and uses – Concept of Money Multiplier. The Reserve Bank of India: Functions; Instruments of Monetary and Credit control, Main features of Monetary Policy since independence.

Unit – III: Development Banks

(No.of Lec.-10) (Marks- 10)

Concept of Development bank and their needs in Indian financial system – Difference with Commercial banks – Major Development banks and their functions (IFCI, IDBI, ICICI, EXIM Bank, SIDBI, SFCs, NABARD)

Unit – IV: Other Financial Institutions

(No.of Lec.-10) (Marks- 10)

Other Financial Institutions: Introduction; Life Insurance Corporation of India, General Insurance Corporation of India, Unit Trust of India.

Unit – V: Interest Rate Structure

(No.of Lec.-10) (Marks- 10)

Meaning – Gross and Net interest rate – their difference, Nominal and Real interest rate – their difference, Differential interest rate, Causes of variation of interest rate, relationship between interest rate and economic progress, Administered and Market determined interest rate. Recent changes in interest structure in India.

Suggested Readings

- Meir Kohn, Financial Institution and Market, Oxford University Press. New Delhi.
- Khan, M. Y., Indian Financial System-Theory and Practice, TMH, New Delhi.
- Bhole, L. M., Financial Markets and Institutions, TMH, New Delhi.
- Pathak, B., Indian Financial System-Pearson, New Delhi.
- Mukherjee, Ghosh and Roy, Indian Financial System and Financial Market Operations, Dey Book Concern, Kolkata
- Clifford, Gomez, Financial Markets, Institutions and Financial Services, PHI

PAPER 3.3 HA
MODULE –2: (50 Marks)
FINANCIAL MARKET OPERATION

- Unit-1:** An overview of financial markets in India L-3 /M-5
- Unit-2: Money Market:**
Concept, Structure of Indian Money Market, Acceptance Houses, Discount Houses,
Call money market, Recent trends of Indian money markets L-10/M-10
- Unit-3: Capital Market**
Concept, Security market, Primary & Secondary markets-Functions & Role,
Functionaries of stock exchanges-Brokers, Sub- Brokers, Jobbers, Consultants,
Institutional Investors & NRIs L-17/M-15
- Unit-4: Investors' Protection**
Grievances concerning Stock Exchange dealings & their removal, Grievance Redressal
Cell in Stock Exchanges, Role of The SEBI, Company Law Board, Judiciary & Media
L-10/M-10
- Unit-5: Financial Services**
Merchant Banking-Functions & Roles, SEBI guidelines, Credit rating-concept & types,
Functions & limitations, Profile of Indian Rating Agencies L-10/M-10

Suggested Readings

- Khan, M. Y., Indian Financial System-Theory and Practice, TMH
- Bhole, L. M., Financial Markets and Institutions, TMH
- Nayak and Sana, Indian Financial System and Financial Market Operations, Rabindra Library
- Gurusamy Financial Services, TMH
- Pathak, B., Indian Financial System, Pearson

Paper for B.Com. Hons. In Accounting & Finance

Paper 3.4 HA: FINANCIAL MANAGEMENT
Module I – 50 Marks

[Each Unit is for 10 classes / 10 marks]

Unit 1: Introduction

- Important functions of Financial Management
- Objectives of the firm: Profit maximisation vs. value maximisation
- Role of Chief Financial Officer.

Unit 2: Basic Concepts

- Time Value of Money: Compounding and Discounting techniques- Concepts of Annuity and Perpetuity.
- Risk-return relationship
- Financial environment in which a firm has to operate

Unit 3: Sources of Finance and Cost of Capital

- Different sources of finance; long term and short term sources

- Cost of capital: concept, relevance of cost of capital, specific costs and weighted average cost, rationale of after tax weighted average cost of capital, marginal cost of capital

Unit 4: Leverage and Capital Structure Theories

- Leverage- Business Risk and Financial Risk - Operating and financial leverage, Trading on Equity
- Capital Structure decisions - Capital structure patterns, Designing optimum capital structure, Constraints, Various capital structure theories.

Unit 5: Working Capital Management (1)

Introduction; Meaning and Concept of Working Capital; Management of Working Capital and Issues in Working Capital; Estimating Working Capital Needs; Operating or Working Capital Cycle.

Paper 3.4 HA: FINANCIAL MANAGEMENT Module II – 50 Marks

Unit 6: Working Capital Management (2)

- Various sources of finance to meet working capital requirements
- Financing current assets: Strategies of financing (Matching, Conservative, and Aggressive policies)
- Bank financing: recommendations of Tandon committee and Chore committee
- Management of components of working capital (an introduction only)

Unit 7: Capital Expenditure Decisions (1)

Purpose, Objectives & Process, Understanding different types of projects, Techniques of Decision making: Non-discounted and Discounted Cash flow Approaches - Payback Period method, Accounting Rate of Return

Unit 8: Capital Expenditure Decisions (2)

Net Present Value, Profitability Index, Internal Rate of Return, Modified Internal Rate of Return, Discounted Payback Period. Ranking of competing projects, Ranking of projects with unequal lives. Capital Rationing.

Unit 9: Dividend Decisions

- Meaning, Nature and Types of Dividend
- Some dividend policies and formulating a dividend policy
- Dividend Theories: Walter's Model, Gordon's Model, Modigliani and Miller: Irrelevancy Theory

Unit 10: Financial Control

Concept, Objectives and Steps, Major Tools of Financial Control, Advantages and Limitations of Financial control system.

Suggested Readings

- M.Y.Khan & P.K.Jain, Financial Management, TMH
- Van Horne, Financial Management & Policy, Pearson

- Van Horne, Fundamentals of Financial Management, PHI
- B.Banerjee, Financial Policy & Management Accounting, PHI
- P.Chandra, Financial Management, TMH

Paper 3.5: Project Work (Written +Viva)(for all Honours Courses)

At least 15 classes should be offered in the third year for **Entrepreneurship Development and Project Planning** in order to motivate the students to take up self-employment afterwards, and also help the students preparing their Project Reports. Such knowledge of *Entrepreneurship and Project Planning* may be tested in course of **Project Viva**.

B.COM HONS. IN MARKETING

3RD year

Paper 3.1 HM: Consumer Behaviour & Sales Management

Module I CONSUMER BEHAVIOUR (50 marks)

Unit 1. Consumer Behaviour: Concept: Application of Consumer Behaviour Knowledge, Modelling Consumer Behaviour, Market Segmentation, Ethics in Marketng.

(L-8, M-10)

Unit 2. Determinants of Consumer Behaviour: Consumer as an Individual, Needs, Motivation, Personality, Perception, Learning Attitude, Communication persuasion, Consumers in their Social & Cultural Setting, the family, social class, cross cultural consumer behaviour

(L-15, M-12)

Unit 3. Consumer Decision-making Process: Personal Influence & Opinion, Leadership Process, Diffusion of innovations, Consumer decision making process

(L-10, M-10)

Unit 4. Consumer Behaviour & Society: Health-care Marketing, Political Marketing, Social Marketing, Environmental Marketing, Public Policy& Consumer Protection.

(L-8, M-8)

Unit 5. Consumer Behaviour and Market Research: Relevance of Marketing Information System and Market Research in assessing Consumer Behaviour.(L-10, M-10)

Suggested Readings

- Schiffman & Kanuk, *Consumer Behaviour*, PHI.
- Loudon & Bitta, *Consumer Behaviour*, TMH
- Bennet & Kassarian, *Consumer Behaviour*, PHI
- Batra & Kazmi, *Consumer Behaviour, Text & cases*, Excel Books
- Beri, *Marketing Research*, TMH
- Bradley, *Marketing Research*. Oxford University Press
- Schiffman and Kannak, *Consumer Behaviour*, Pearson Education

Paper 3.1HM: Module II: SALES MANAGEMENT (50 Marks)

Unit 1. Sales Organization: Purpose and General principles of organization, Ever-growing complexity of Sales Organisation, Different Models of Sales Organisation, Factors determining Sales Organisation Structure, Decentralised structure, Common Problems associated with Structuring the Sales Organisation, Tasks of Chief Sales Executive

(L-15, M-12)

Unit 2. Designing the Sales Force : Objectives, Strategies, Structure, Size and compensation of sales Force

(L-10, M-8)

Unit 3. Managing the Sales Force : Recruitment, Selection, Placement, Transfer, Training, Development and Grievances; Handling of Sales Force, Performance Evaluation of Sales Force

(L-10, M-10)

Unit 4. Personal Selling and Salesmanship : Buyer-Seller Dyads, Theories of selling, Personal Selling as a Career, Steps in Personal Selling —Methods of Approaching a Customer, Handling Customer Objections, Negotiations —Bargaining and Negotiation Approaches, Bargaining Strategies and Tactics during Negotiation

(L-12 M-10)

Unit 5. Marketing Channels and Selection : Need, Functions, Levels; Identifying and Analyzing Customers' Needs for Products Services, Developing Channel Objective, Selection of Appropriate Channel

(L-12, M-10)

Suggested Readings

- Cundiff, Still and Govoni, *Sales Management*, PHI
- Smith, *Sales Management*, PHI
- Kotler, *Marketing Management*, PHI
- Zieglar, et al *Sales Promotion and Modern Merchandising*
- Stem, Ansary and Coughlan *Marketing Channels*, PHI
- Warmer, *Marketing and Distribution*, MaCmillan, New York
- Pyle, *Marketing Principles*, MaCmillan, New York
- Douglas, et al *Fundamentals of Logistics and Distribution*, Tata McGraw-Hill
- Gupta, *Sales and Distribution Management*, Excel Books

Paper for B.Com. Hons. in Marketing

PAPER 3.2 HM: PRODUCT AND PRICING MANAGEMENT & MARKETING COMMUNICATION

(Module I: 50 marks)

PRODUCT AND PRICING MANAGEMENT

Unit 1. Product: Concept, Product Portfolio, Strategies relating to a Balanced Product Portfolio; PLC Operationalisation.

(L-12, M-10)

Unit 2. New Product Development : Concept, Planning Adoption process, Diffusion of Industrial Innovation, Integrated approach to New Product Development, Generation and Screening of New Product Ideas, Test Marketing and New Product Launch.

(L-15, M-12)

Unit 3. Packaging : Concept, Importance, Packaging and Product Differentiation, Packing Notes and Packing Lists, Packaging Strategies, Legal Aspects of packaging

(L-8, M-5)

Unit 4. Branding : Name and Selection process, Trademark, Positioning Strategies: Leader Positioning, Follower Positioning, Repositioning

(L- 10, M-8)

Unit 5. Pricing : Concept, Importance of Pricing in Consumer Buying Process, Factors Determining Effectiveness of Price, Various aspects of Service Pricing , Pricing Methods, Price Cartel, Pricing in the Indian Context, Regulatory Price Environment (L-20, M-15)

Suggested Readings

- Kotler, *Marketing Management*, PHI
- William and Ferrell, *Marketing*, Houghton Mifflin
- Stanton, Etzel and Walker, *Fundamentals of Marketing*, McGraw-Hill
- Neelamegham, *Marketing in India: Cases and Readings*, Vikas Publishing
- Majumder, *Product Management in India*, PHI
- McCarthy and Perreault, *Basic Marketing Managerial Approach*, Irwin, Homewood, Illinois
- Srivastava, R. K., *Product Management & New Product Development*, Excel Books
- Ramaswamy and Namakumari, *Marketing Management*, Macmillan India
- Srinivasan, *Case Studies in Marketing: The Indian Context*, PHI

Paper 3.2HM: Module II (50 Marks) **MARKETING COMMUNICATION**

Unit 1. Communication Process : Importance of communication, Steps involved in the Process of Communication (L-5, M-5)

Unit 2. Advertising and Communication Mix : Advertising Definition, Importance, Different Advertising Functions, Types of Advertising, Advertising Process, Setting Advertising Objectives and Budget, Economic aspects of Advertising, Communication Mix. (L-16, M-15)

Unit 3. Creative Aspects of Advertising : Advertising Appeal, Copy Writing, Headline, Illustration, Message, Copy Types, Campaign Planning. (L-8, M-5)

Unit 4. Advertising Media : Different Types of Media, Media Planning and Scheduling (L-8, M-5)

Unit 5. Impact of Advertising : Advertising Agency Roles, Relationships with Clients Role of Advertising Department, Measuring Advertising Effectiveness, Legal and Ethical Aspects of Advertising (L-12, M-10)

Unit 6. Sales Promotion : Meaning, Nature and Functions, Types, Sales Promotion Techniques, Limitation of Sales Promotion (L-10, M-10)

Suggested Readings

- Batra and Myers, *Advertising Management*, Prentice Hall
- Sengupta, *Brand Positioning Strategies for Competitive Advantage*, TMH
- Cundiff, Still and Govoni, *Sales Management*, Prentice Hall
- Rossiter and Percy, *Advertising and Promotion Management*, MacGraw-Hill
- Sundage, Fryburger and Rotzoll, *Advertising Theory and Practice*, AITBS
- Belch and Belch, *Advertising and Promotion*, TMH
- Kayni and Batra, *Advertising & Sales Promotion*, Excel Books

Paper for B.Com. Hons. in Marketing

Paper 3.3HM : RETAIL MANAGEMENT & MARKETING OF SERVICES

Module I (50 Marks) RETAIL MANAGEMENT

Unit 1. Retailing : Concept, Importance, Functions, Development of Retailing in India, Factors determining Growth of Retailing in India, Role of Retail in Nation's Economy.

(L-20, M-18)

Unit 2. Retail Formats : Concept, Classification, Multi-channel retailing, Current Indian Scenario

(L-15, M-12)

Unit 3. Pricing and Promotion in Retail : Importance of Retail Pricing, Factors affecting Retail Pricing, Approaches to Product Pricing, Need and Objectives of Promotional Mix in Retailing, Promotional Mix and Strategy development, Customer Relationship Management

(L-20, M-20)

Paper 3.3 HM: Module II (50 Marks) MARKETING OF SERVICES

Unit 1. Introduction to Services Marketing : Services— Types, nature, characteristics, Understanding Service Customers, Reasons for Growth - Indian Scenario (L-15, M-10)

Unit 2. Service Marketing Management : Service Marketing Mix— Elements: Service Products, Pricing in Services, Service Promotion. Place in Services, and People in Services, Managing Service Quality, Relationship Marketing — Concept, Application, Marketing Strategy

(L-25, M-25)

Unit 3. Service Marketing in Non-profit and Profit Organisations : Travel and Tourism, Financial Services, Information Technology Services, Media Services, Health Care Services, Educational Services

(L-20, M-15)

Suggested Readings

- Madaan, *Fundamentals of Retailing*, Tata McGraw-Hill
- Venugopal and Raghu, *Services Marketing*, Himalaya Publishing Ltd
- Ravi Shankar, *Services Marketing: The Indian Perspective*, Excel Books
- Rampal & Gupta, *Services Marketing, Concepts, Applications & Cases*, Galgotia
- Apte, *Services Marketing*, Oxford University Press

Paper for B.Com. Hons. in Marketing

Paper 3.4 HM: RURAL MARKETING & INTERNATIONAL MARKETING

Module I (50 Marks) RURAL MARKETING

Unit 1. Rural Marketing : Concept, Importance, Rural vs. Urban Marketing (L-6, M-5)

Unit 2. Understanding Rural Marketing Environment : Geographic, Economic, Socio-Cultural and Infrastructural factors and their influence on Rural Marketing Operations

(L-12, M-10)

Unit 3. Rural Consumer : Characteristics, Attitudes and Behaviour, Buying Patterns and Influences

(L-10, M-8)

Unit 4. Rural Marketing Strategies : Segmenting Rural markets, Product Planning for Rural Markets, Market Size, Packaging and Branding Decisions, Pricing Decisions

(L-12, M-10)

Unit 5. Promotion and Distribution in Rural Markets : Promotion in Rural Markets, Distribution Channels and Logistics in Rural Markets (L-8, M-7)

Unit 6. Marketing of Agricultural Products : Pricing and Distribution of Agricultural products, Role of Government and other organizations in Marketing Agricultural Products; Co-operative Marketing, Problems in Agricultural Marketing (L-12, M-10)

Suggested Readings

- Rajagopal, *Management of Rural Business*, Wheeler
- Neelamegham, *Marketing in India: Cases and Readings*, Vikas Publishing
- Mathur, U . C., *Rural Marketing*, Excel Books
- Gopalswamy, *Rural Marketing*, Wheeler
- Nyyar and Ramaswamy, *Globalization and Agricultural Marketings*, Rawat Publishers
- Mamoria, *Agricultural marketing*, Himalaya Publishing House

Paper 3.4HM: Module II (50 marks)

INTERNATIONAL MARKETING

Unit 1. Introduction : Meaning and Scope of International Marketing, International Marketing Environment – External and Internal, Identifying and Selecting Foreign Markets (L-16, M-14)

Unit 2. Product/Service Planning for International Market : Product/Service Labeling, Quality, After sales Service (L-6, M-5)

Unit 3. International Pricing : Factors influencing International Price, International Price Quotation and Payment Terms (L-8, M-5)

Unit 4. Promotion of Product/Service Abroad : Sales Literature, Direct Mail, Personal Selling, Advertising, Trade Fairs and Exhibitions (L-7, M-5)

Unit 5. International Distribution : Management of Distribution Channels and Logistics, Selection and Appointment of Foreign sales Agents (L-6, M-5)

Unit 6. Import and Export Policies and Practices in India : EXIM Policy – an Overview, Trends in India's Foreign Trade, Steps in Starting an Export Business, Product Selection, Market Selection, Export Finance, Export Risk Insurance, Export Assistance and Incentives, Export Pricing, Documentation and Procedure, Legal Aspects, Export Processing Zone (L-18, M-16)

Suggested Readings

- Bhattacharyya and Varsney, *International Marketing Management*, Sultan Chand
- Bhattacharyya, *Export Marketing Strategies for Success*, Global Press
- Keegan, *Multinational Marketing Management*, Prentice Hall
- Kriplani, *International Marketing*, Prentice Hall
- Taggart and Mott, *The Essence of International Business*, Prentice Hall
- Kotler, *Principles of Marketing*, Prentice Hall
- Caterora and Keavenay, *Marketing: an International Perspective*, Irwin, Homewood, Illinois
- Paliwala, *The Essence of International Marketing*, Prentice Hall
- Vasudeva, *International Marketing*, Excel Books

Paper 3.5: Project Work (Written +Viva)(for all Honours Courses)

At least 15 classes should be offered in the third year for **Entrepreneurship Development and Project Planning** in order to motivate the students to take up self-employment afterwards, and also help the students preparing their Project Reports. Such knowledge of *Entrepreneurship and Project Planning* may be tested in course of **Project Viva**.

BCOM PART-III (HONS IN TAXATION)
Paper 3.1 HT: PUBLIC FINANCE AND TAXATION

MODULE 1: 50 Marks

- Unit 1: Origin and Development of Public Finance** (5 Marks, Lectures-5)
Meaning, public finance and federal finance, public finance and private finance, principle of maximum social advantage
- Unit 2: Principles of Taxation and Government Expenditure** (15Marks, Lectures-15)
Benefit approach, allocation of public goods, ability to pay approach, excess burden of taxes
- Unit 3: Raising of Public Funds** (10 Marks, Lectures-10)
Sources and classification of public revenues, incidences and shifting of taxes
- Unit 4: Distribution of Public Funds** (10 Marks, Lectures-10)
Effect on production, employment, distribution and stability, public debt and fiscal deficit
- Unit 5: Public Debt Management and Taxation** (10 Marks, Lectures-10)

Paper 3.1 HT: PUBLIC FINANCE AND TAXATION
MODULE 2: 50 Marks

- Unit 1: Development of Federal Finance in India** (10 Marks, Lectures-8)
The constitutional arrangements, Finance Commissions
- Unit 2: Central Finances** (10 Marks, Lectures-10)
Sources and uses of funds, effects of Fiscal Policy, relation between planning and central budgeting
- Unit 3: State Finances** (10 Marks, Lectures-10)
Sources and uses of funds, issues of federalism
- Unit 4: Financing of Five-year Plans** (15 Marks, Lectures-14)
Changing scenario of Indian tax Structure, new economic policy since 1991
- Unit 5: Indian Fiscal Policy and Deficit Financing** (5 marks, Lectures- 8)

Suggested Readings

- R. Mursgrave, The Theory of Public Finance, McGraw Hill
- R. Mursgrave and P.B. Mursgrave, Public Finance in Theory and Practice, McGraw Hill
- J. M. Buchanan, Public Finance
- Due and Friedlandar, Public Finance
- S. Ganguli, Public Finance, World Press
- B. M. Bhargava, Public Finance
- B. M. Bhargava, The Theory and Working of Union Public of India
- Vaish and Agarwal, Public Finance, Wiley Eastern

- Economic Survey, Ministry of Finance, GOI
- Currency and Finance, RBI
- Annual Report of RBI

Paper for B.Com. Hons. in Taxation

**PAPER 3.2 HT
DIRECT TAX LAW AND PRACTICE
MODULE 1 – 50 Marks**

Unit 1: a) Residential Status and Incidence of Tax

Residential status of a company, Incomes deemed to accrue or arise in India u/s 9

b) Income which do not form part of Total Income

Sec 10A, 10AA, 10B, 10BA

(L 10 / M 10)

Unit 2: Heads of Income and Provisions Governing Heads of Income

a) Profits and gains from business and profession

Advance level discussion with special emphasis on presumptive taxation

b) Capital Gains

Advance level discussion with special emphasis on transfer, treatment u/s 45(1A), 45(2), 45(3), 45(4), 45(5), taxability of financial assets and exemptions

c) Income from other sources

Advance level discussion with special emphasis on deemed dividend

(L 35 / M 30)

Unit 3: a) Income of other Persons included in Assessee's Total Income

Revocable transfer of assets, Income from assets transferred to the benefit of spouse and son's wife, Conversion of self acquired property into joint family property

b) Deductions from Gross Total Income

Deductions u/s 80IAB, 80IC, 80ID, 80IE

(L 5 / M 10)

**PAPER 3.2 HT
DIRECT TAX LAW AND PRACTICE**

MODULE 2 – 50 Marks

Unit 1: Computation of Total Income and Tax Payable

Advance level problems on computation of total income and tax liability of an Individual, HUF, Firm and AOP

(L 25 / M 25)

Unit 2: a) Relief U/S 89

b) Double Taxation Relief

c) Business Restructuring – Amalgamation, Demerger, Slump Sale

(L 10 / M 10)

Unit 3: Wealth Tax

Advance level discussion with special emphasis on basic concept of valuation of let-out building, Advance level problem on computation on net wealth and tax payable

(L 15 / M 15)

Suggested Readings

- Singhanian V.K., and Singhanian K, Direct Tax Law and Practice, Taxmann
- Lal and Vashist, Direct Taxes, Pearson
- Gupta and Ahuha, Direct Taxes Law And Practice, Bharat

Paper for B.Com. Hons. in Taxation

PAPER 3.3 HT: INDIRECT TAX LAW AND PRACTICE

MODULE 1: 50 Marks

Unit 1: a) Basic Concepts

Concepts of Indirect Tax, Difference between Direct And Indirect Tax, Indirect tax structure in India.

b) CENTRAL EXCISE ACT, 1944

(L 30 / M 30)

Unit 2: WB VAT ACT 2003

(L 20 / M 20)

PAPER 3.3 HT: INDIRECT TAX LAW AND PRACTICE

MODULE 2: 50 Marks

Unit 1: CUSTOMS ACT, 1962

(L 25 / M 25)

Unit 2: a) CENTRAL SALES TAX ACT, 1956

b) SERVICE TAX

(L 25 / M 25)

Suggested Readings

- Datey V.S., Indirect Taxes Law And Practice, Taxmann
- Sanjeev Kumar, Systematic Approach to Indirect Taxes, Bharat
- Bangar and Bangar, Students' Guide to Indirect Taxes, Aadhya Prakashan

Paper for B.Com. Hons. in Taxation
PAPER 3.4 HT: TAX PLANNING AND PROCEDURE
MODULE 1: 50 Marks
TAX PROCEDURE

- Unit 1: Return of Income** (L 10 / M 10)
- Unit 2: Assessment of Return** (L 10 / M 10)
- Unit 3:** a) Advance Tax
b) Interest
c) Advance Ruling for Non-Resident (L 12 / M 10)
- Unit 4:** a) TDS
b) Refund of Excess Payment (L 10 / M 10)
- Unit 5:** a) Penalties and Prosecutions
b) Appeals and Revisions
c) Income Tax Authorities (L 8 / M 10)

PAPER 3.4 HT: TAX PLANNING AND PROCEDURE
MODULE 2: 50 Marks
TAX PLANNING

Unit 1: Basic Concepts

- a) Concept and difference between tax planning, tax avoidance and tax evasion
b) Objectives, requisites, factors and types of tax planning (L 3 / M 5)

- Unit 2:** a) Tax Planning under different Heads of Income
b) Tax Planning on Deductions under Chapter VIA (L 12 / M 10)

- Unit 3:** a) Setting up a New Business
Location, nature and form of business
b) Financial Management Decisions
Capital structure, dividend policy (including inter corporate dividend) and bonus shares
c) Tax Planning related to Amalgamation and Demerger (L 10 / M 10)

Unit 4: Specific Managerial Decisions

- Make or buy, own or lease, own fund versus borrowed fund for financing of assets, shut down or continue, sale in domestic market or export, repair or replacement (L 17 / M 15)

- Unit 5:** a) Tax planning in relation to Employees Compensation
b) Basic Concepts of Foreign Collaboration Agreement
c) Relief for Double Taxation

(L 8 / M 10)

Suggested Readings

- Singhanian V.K., and Singhanian K, Direct Tax Law and Practice, Taxmann
- Lal and Vashist, Direct Taxes, Pearson
- Gupta and Ahuha, Direct Taxes Law And Practice, Bharat
- Singhanian V.K., and Singhanian M, Corporate Tax Planning and Business Tax Procedure, Taxmann

This syllabus is applicable to the students of third year who will be appearing in the Examinations in 2013. Direct Tax Code covering all Direct Taxes and Goods and Service Tax Act covering all Indirect Taxes are going to be effective w.e.f 1.4.2011. In view of the expected changes only the chapter headings are given without detailed coverage under each unit. The detailed syllabus will be prepared after the passing of the two Acts.

Paper 3.5: Project Work (Written +Viva)(for all Honours Courses)

At least 15 classes should be offered in the third year for **Entrepreneurship Development and Project Planning** in order to motivate the students to take up self-employment afterwards, and also help the students preparing their Project Reports. Such knowledge of *Entrepreneurship and Project Planning* may be tested in course of **Project Viva**.

B.COM. HONOURS IN COMPUTER APPLICATIONS & E-BUSINESS

Paper 3.1HeB: FUNDAMENTALS OF COMPUTER

MODULE – I 50 MARKS

Unit 1. Computer Basics: Characteristics of computer. Generations of computer. Type of computer – Mainframe, Mini, Micro (desktop, laptop and handheld), Super Computer. Inside a Computer – Power supply (SMPS), Motherboard, Ports and interfaces, Expansion Cards, memory Chips, Ribbon Cables, Storage devices, Processor. [15 lectures / 20 Marks]

Unit 2. CPU organization and architecture: Arithmetic/Logic Unit (ALU), control Unit (CU), Registers, System Bus, Processor to Memory Communication Processor to I/O devices Communication. [10 lectures / 20 Marks]

Unit 3. Memory organization: Memory representation, Cache memory, Primary memory – RAM and ROM. Functions of RAM and ROM. Different types of RAM and ROM. Secondary memory – Magnetic and optical storage devices (brief description of different types). Storage organization of a Magnetic disk. Mass storage devices – RAID, Automated Tape Library. [10 lectures / 15 Marks]

**Paper 3.1 HeB: FUNDAMENTALS OF COMPUTER
MODULE II – 50 MARKS**

Unit 4. Input and Output devices: Major types and their functions. [6 lectures / 6 Marks]

Unit 5. Operating System: Concept, types, functions. [6 lectures / 8 Marks]
]

Unit 6. Problem Solving Tools; Algorithm. Flowcharts- Concepts, advantages and disadvantages of flowcharts, Problem solving using flowcharts.

Decision Tables - Concepts, advantages and disadvantages of decision tables, Problem solving using decision tables. [8 lectures / 12 Marks]

Unit 7. Data communication and Computer networks: Transmission Modes - Simplex, Half-Duplex, Full Duplex. Analog and digital transmission. Synchronous and Asynchronous transmission. Multiplexing. Network Concept, Types - LAN, WAN, MAN, VAN, SAN.

Various Topologies - Bus, Star, Ring, Mesh, Tree. Protocol Models - OSI, TCP/IP

[10 lectures/ 16 Marks]

Unit 8. Multimedia essentials: Definition, building blocks of multimedia, multimedia system, multimedia application. [5 lectures / 8 Marks]

Suggested Readings:

- ITLESL, Introduction to Computer Science, Pearson Education
- ITLESL, Introduction to Information Technology, Pearson Education
- .Sinha & Sinha, Fundamentals of Computers, BPB Publication.
- .Rajaraman, Fundamentals of Computers, PHI

Paper for B.Com. Hons. in Computer Application and e-Business

Paper 3.2HeB

Module I: Marks: 50

DATABASE MANAGEMENT SYSTEM

Unit 1. Introduction to DBMS: Concepts of database and database management system(DBMS). Data abstraction. Architecture – three schema architecture. Administration roles. (L8 /M10)

Unit 2. Data models: hierarchical model, network model and relational model. (L6 /M8)

Unit 3. Database languages: Data Definition Language (DDL), Data Manipulation Language (DML), and Data Control Language(DCL). (L6 /M8)

Unit 4. SQL – An Overview: SQL constructs, embedded SQL , Query & Query Optimization Techniques. (L6 /M8)

Unit 5. Database design: Design phases - conceptual, logical and physical . ER diagram and model. (L6 /M8)

Unit 6. Database Normalisation: Concept. Normal forms - 1NF, 2NF, 3NF, BCNF. (L4 /M4)

Unit 7. Indexing; Single level indexing - Primary, Clustering, Secondary. Multilevel indexing.

Suggested Readings:

- Korth, Data Base System Concepts, TMH
- Leon, Data Base Management System, VIKAS
- Ivan Bayross, PL/SQL Programming

Paper 3.2 HeB
Module II: Marks: 50
SYSTEM ANALYSIS AND DESIGN

Unit 1. Overview of System analysis and design: system concepts. System Development models – Waterfall model, Spiral model. System development methods – major steps. (L6 /M8)

Unit 2. Phases in System Development: Problem definition. Analysis. Design. Implementation. Evaluation. (L6 /M8)

Unit 3. Information requirement analysis: Process modelling with physical and logical data flow diagrams. (L8 /M12)

Unit 4. System design: Process descriptions, Input/output controls, object modeling, Database design, User Interface design, Documentation, Data Dictionary, Development methodologies: Top down, bottom up, structured chart, decision table, decision tree. (L10 /M16)

Unit 5. Testing – Unit, integration, system, Acceptance, regression, Test Case generation. (L4 /M6)

Suggested Reading:

- Parthasarathi, System Analysis & Design, EPH
- Raja Raman, Analysis & Design of Information Systems, PHI

Paper for B.Com. Hons. in Computer Application and e-Business

Paper 3.3 HeB
Module I: Total Marks: 50
INTERNET AND WORLD WIDE WEB

Unit 1. Working of the internet with TCP/IP: Origin of TCP/IP. TCP/IP communication architecture, Internet Architecture, Working of TCP/IP, TCP/IP Applications - FTP, Telnet, Simple Mail Transfer Protocol, Network File System. (L8 /M12)

Unit 2. Internet Concepts: WWW, Internet and E-Commerce, Linking to the Internet, Internet Address, Internet Tools- Information Retrieval tools (ftp, Gopher), Communication Tools (Email, FTP, Telnet, Usenet), Multimedia Information Tools (Home page), Information Search Tools (Archie, Veronica, WAIS). Domain Name System. (L10 /M14)

Unit 3. Intranet and Extranet: Intranet, Intranet vs. Groupware, Intranet Hardware, Intranet Software, Intranet Services (Web (HTTP) Publishing, HTML,), Communication Systems (Email, Fax), Software used in Electronic mail, Electronic Meeting Systems (Audio conferencing, Video Conferencing, Groupware), Extranet. (L6 /M8)

Unit 4. Internet Security: Security on the internet, Network and Website Security Risks, Site Hacking, Security Incidents on the internet security and email, network and website security, Firewall (Concept, Components and Constituents, Benefits), Enterprise wide security Framework, secure physical infrastructure). (L10 /M16)

Paper 3.3HeB
Module II : Marks: 50
FUNCTIONAL E-BUSINESS SYSTEM

Unit 1. Applications of E-Business: Direct Marketing and Selling, Value Chain Integration, Supply Chain Management, Corporate Purchasing, Financial and Information Services, Obstacles in adopting E-Business Applications. (L6 /M8)

Unit 2. E-Strategy: Information and Strategy, The virtual value chain planning E-Business project, E-Business strategy and knowledge management. (L 4 /M 6)

Unit 3. Customer –effective Web design: Requirements of Intelligent Websites, Website Goals and Objectives, planning the budget, analyzing website structure, fixed versus flexible webpage design, choosing a page size, website development tools, design alternatives, outsourcing web design, testing and maintaining websites. (L6 /M8)

Unit 4. Electronic Payment Systems-Overview of Electronic Payment Systems, Customer to Merchant Payments, Peer to Peer Payments. Electronic Banking, Electronic Fund Transfers. (L5 /M8)

Unit 5. E-Business Marketing Concepts: Basic marketing concepts for internet marketing, E-Business marketing and branding strategies, Strengthening the customer relationship. (L4 /M6)

Unit 6. E-Commerce and Online service industries: Online financial services. Online travel services. Online career services. (L3 /M4)

Unit 7. Mobile Commerce- Wireless Spectrum, WAP - Origins of WAP, WAP Architecture. Wireless Datagram Protocol(WDP), Short Message Services, General Packet Radio Service(GPRS),Wireless Technology (CDMA, GSM), Different generations in Wireless Communication, Mobile commerce and its future in India. (L6 /M10)

Suggested Readings:

- S. Jaiswal, Doing Business on the Internet E-COMMERCE (Electronic Commerce for Business), Galgotia Publications.
- P.T.Joseph, E-Commerce An Indian Perspective, S.J., PHI.
- Kenneth C. Laudon, Carol Guerico Traver, 3.E-Commerce Business.Technology, Society, Pearson Education.
- Schneider, E-Commerce, Thomson Publication

Paper for B.Com. Hons. in Computer Application and e-Business

Paper 3.4 HeB: COMPUTER APPLICATION (Practical)
Module I - Total Marks: 50

Unit 1: C++ [25 classes / 25 marks]

Unit 2: Use of Accounting software package – ACE, TALLY [25 classes / 25 marks]

Paper 3.4 HeB: E-BUSINESS APPLICATION (Practical)
Module II - Total Marks: 50

Unit 1: HTML & DHTML

[20 classes / 20 marks]

Unit 2: JAVA

[30 classes / 30 marks]

1. OOPS Concept and Introduction to JAVA. 2. An overview of Java. 3. Data Types - variables and arrays. 4. Operators, Control statements. 5. Classes and objects. 6. Inheritance. 7. String and string buffer. 8. Exception handling. 9. Applets.

Paper 3.5: Project Work (Written +Viva)(for all Honours Courses)

At least 15 classes should be offered in the third year for **Entrepreneurship Development and Project Planning** in order to motivate the students to take up self-employment afterwards, and also help the students preparing their Project Reports. Such knowledge of *Entrepreneurship and Project Planning* may be tested in course of **Project Viva**.

Detail Syllabi for B.Com.General Courses

Paper 1.1 Chg to 2.2 Chg are common to both Honours and General Courses

B.Com. General

Paper 2.3Cg: FINANCIAL ACCOUNTING – II
(MODULE-I): 50 Marks

Unit	Topic	Details	Marks allotted	No. of lectures
1	Partnership accounts-II	Accounting for dissolution of firm – insolvency of one or more partner, consideration of private estate and private liabilities.	14	12
2	Branch accounting	Concept of Branch; different types of Branches. Synthetic method – preparation of Branch account. Preparation of Branch Trading and P/L account. (at cost & at IP) – normal and abnormal losses. Analytical method – preparation of Branch Stock, Adjustment etc A/C (at cost & at IP) – normal & abnormal losses	12	12

3	Hire purchase and Instalment payment system	Meaning; difference with Installment payment system; Recording of transaction in the books of buyer – allocation of interest– complete repossession Books of Seller – Stock and Debtors A/C (without repossession) Books of Seller – H.P. Trading A/C (without repossession)	12	12
4	Departmental accounts	Concept, difference with Branch, objective of preparation of departmental accounts, apportionment of common cost; Preparation of Departmental Trading and P/L account, Consolidated Trading and P/L account; inter departmental transfer of goods at cost.	12	10
			50	46

B.Com. General

Paper 2.3 Cg:FIANANCIAL ACCOUNTING – II (MODULE-II): 50 Marks

Unit	Topic	Details	Marks allotted	No. of lectures
1	Company – Introduction And Accounting for Shares & debentures	<ul style="list-style-type: none"> • Meaning of Company; Maintenance of Books of Accounts; Statutory Books; Annual Return • Issue of Shares – issue, forfeiture, reissue, issue other than in cash consideration and issue to the promoters; Pro-rata issue of shares. Issue of debentures. • Right and Bonus Share – Rules, Accounting • Alteration of Share Capital; Conversion of fully paid shares into stock; Equity Shares with different rights. • Underwriting of shares and debentures: Rules; Determination of Underwriters Liability – with marked & unmarked forms only. 	30	24
2	Buy back and Redemption of preference shares	<ul style="list-style-type: none"> • Buy Back of Securities – meaning and accounting (simple type only). • Redemption of Preference Shares – Rules and Accounting (with and without Bonus Shares) (without preparation of Balance Sheet) 		

3	Investment Accounts	Maintenance of Investment Ledger; Preparation of Investment Account (transaction with brokerage, cum & ex-interest), Valuation of Investment under FIFO and Average method; Investment Account for Shares (with Right Shares and Bonus Shares).	10	8
4	Redemption of debenture	Redemption of Debenture – Important Provisions, Accounting for Redemption: by conversion, by lot, by purchase in the open market (cum and ex-interest), (elementary level only)	10	10
			50	42

Suggested Reading

- Sukla, Grewal, Gupta, Advanced Accountancy Vol. I & II, S Chand
- R. L.Gupta & Radheswamy, Advanced Accountancy Vol. I & II, S. Chand
- Maheshwari & Maheshwari, Advanced Accountancy Vol. I & II, Vikash Publishing House Pvt. Ltd.
- Sehgal & Sehgal, Advanced Accountancy Vol. I & II, Taxman Publication
- L.S.Porwal, Accounting Theory, Tata Mcgraw Hill
- Gokul Sinha, Accounting Theory & Management Accounting,
- B. Banerjee, Regulation of Corporate Accounting & Reporting in India, World Press.
- Accounting Standards issued by ICAI

B.Com. General

**PAPER 2.4 Cg
DIRECT & INDIRECT TAXATION**

MODULE-1: 50 marks

Unit 1: a) Basic Concepts and Definitions under IT Act

Assessee, Previous year, Assessment year, Sources of income, Heads of income, Gross total income, Total income, Tax Evasion, Tax avoidance, Tax planning

b) Residential Status and Incidence of Tax

Residential status of all persons except company

c) Incomes which do not form part of Total Income

Except sections 10A, 10AA, 10B, 10BA

d) Agricultural Income

Definition, determination of agricultural and non-agricultural Income. (L-7 / M-10)

Unit 2: Heads of Income and Provisions governing Heads of Income

Salaries, Income from House property (L-14 / M-10)

Unit 3: Heads of Income and Provisions governing Heads of Income

Basic concepts and simple problems on:

a) Profits and Gains from Business and Profession

Special emphasis on sec 32, 35, 35D, 36, 37, 40A(2), 40A(3), 43B

(Excluding presumptive taxation)

b) Capital Gain

Meaning and types of capital assets, basic concept of transfer, cost of Acquisition, cost of improvement and indexation, computation of STCG and LTCG, exemptions u/s 54 and 54F, taxability of STCG and LTCG

c) Income from Other Sources

Basic concepts excluding deemed dividend

(L-15 / M-10)

Unit 4: a) Income of other Persons included in Assessee's Total Income

Remuneration of spouse, income from assets transferred to spouse and Son's wife, income of minor

b) Set off and Carry Forward of Losses

Mode of set off and carry forward, inter source and inter head set off,

Carry forward and set off of losses u/s 71B, 72, 73, 74, 74A

c) Deductions from Gross Total Income

Basic concepts, deductions u/s 80C, 80CCC, 80CCD, 80CCE, 80CCF, 80D, 80DD, 80DDB, 80E, 80G, 80GG, 80GGA, 80GGC, 80U

(L-9 / M-10)

Unit 5: Computation of Total Income and Tax Payable

d) Rate of tax applicable to different assessee (except corporate assessee)

e) Computation of tax liability of an individual

(L-5 / M-10)

PAPER 2.4 Cg
DIRECT & INDIRECT TAXATION

MODULE II – 50 Marks

Unit 1: TAX MANAGEMENT

(L-15 / M-15)

a) Provision for Filing of Return

Date of filing of return, relevant forms of return, different types of returns, return by whom to be signed, PAN, TAN

b) Assessment of Return

Self assessment, summary assessment u/s 143(1), scrutiny assessment u/s 143(3) and best judgment assessment u/s 144

c) Advance Tax

When liable to pay, due dates and computation of advance tax (excluding Corporate assesses)

d) Interest

Interest u/s 234A, 234B, 234C, (simple problems on interest)

e) TDS

TDS from salary, lottery, horse racing, interest on securities

Unit 2: WEALTH TAX

(L-10 / M-10)

Definitions, incidence of tax, basic concepts of assets, exempted assets, deemed assets and debt owed, computation of net wealth and tax payable (simple problem)

Unit 3: CENTRAL SALES TAX, 1956

(L-11 / M-10)

Definitions, incidence and levy of tax, exemption and exclusion, determination of turnover and tax payable, registration of dealer, forms under CST

Unit 4: WB VAT ACT, 2003

(L-11 / M-10)

Basic concepts, features, advantages and disadvantages of vat, rate of tax, definitions, input tax, output tax, input tax credit, incidence and levy of tax, determination of tax payable, registration of dealer

Unit 5: CENTRAL EXCISE ACT, 1944

(L-3 / M-5)

Basic concepts, conditions of excise liability, taxable event of excise duty, definitions of goods, manufacture, excisable goods, factory, broker or commission agent, wholesale dealer, sale or purchase

If any new legislations/provisions are enacted in place of the existing legislations/provisions, the syllabus will accordingly include such new legislations/provisions in place of existing legislations/provisions with effect from such date as prescribed by CALCUTTA UNIVERSITY. Similarly if any existing provision becomes redundant due to changes, it will be left out of the syllabus.

Suggested Readings

- Singhanian, V. and Singhania, M., Students' guide to Income Tax, Taxmann
- Lal & Vashist, Income Tax and Central Sales Tax, Pearson
- Ahuja & Gupta, Systematic Approach to Income Tax, Bharat

- V.S. Datey, Indirect Taxes Laws and Practice, Taxmann
- Bangar and Bangar, Students' guide to Indirect Tax, Aadhya Prakashan

B.Com.General

Paper 2.5 Cg: COST & MANAGEMENT ACCOUNTING 1

MODULE I : 50 MARKS

Unit 1

Introduction: Definition of Costing, Cost Accounting and Management Accounting. Objectives of Cost Accounting; Importance of Cost Accounting to Business Concern. Relationship between Cost Accounting, Financial Accounting, Management Accounting and Financial Management; Advantages of a Cost Accounting system, Installing a Cost Accounting System, Essentials of a good Cost Accounting System.

Cost concepts, terms and classification of costs: Cost, Cost object, Cost units and Cost Centres, Types of costs, classification of costs, cost sheet (introduction only), total costs and unit costs.

Costing Methods and Techniques (introduction only).

(3 + 5 + 2 =10 classes/10 marks)

Unit 2.

Material Costs

- Purchase of materials:* Purchasing needs and organisation, purchase procedure, documentation, material costs (direct and indirect).
- Storage of materials:* Need for storage, location and types, functions of a storekeeper, requisition, receipt, issue and transfer of materials, storage record, accounting for materials cost.
- Materials control:* Organisation; Tools: Just-in-Time Purchase; various stock levels, Economic Ordering Quantity and ABC Analysis; Periodic Inventory, Perpetual Inventory, Physical verification; Discrepancies in stock and their treatment.

[3 + 4 + 3 = 10 classes / 10 marks]

Unit 3

Methods of pricing material issues

Various methods of pricing materials issues; Advantages and disadvantages of each method; Comparative analysis; Stock Valuation for Balance Sheet.

Treatment of Normal and Abnormal Loss of Materials; Accounting and control of Waste, Scrap, Spoilage and Defectives.

[7+3 = 10 classes / 10 marks]

Unit 4

Employee Cost- Introduction, Recording labour cost: Attendance and payroll procedures (Time-keeping, Time-Booking, Payroll procedure, Payment of wages, Overview of statutory

requirements), Idle time (causes and treatment in Cost Accounting), Overtime (its effect and treatment in Cost Accounting), Labour turnover- Causes and methods of calculating labour turnover; cost of labour turnover.

[10 classes / 10 marks]

Unit 5

Incentive Systems – Main Principles for sound system of wage incentive schemes; labour utilisation; Distinction between direct and indirect labour cost; System of Wage Payment and Incentives; System of Incentive Schemes for Indirect Workers; Component of wages cost for costing purpose; Absorption of wages.

[10 classes / 10 marks]

Paper 2.5 Cg: COST & MANAGEMENT ACCOUNTING 1

MODULE II : 50 MARKS

Unit 6

Overhead

(a) *Introduction* Definition, Classification of Overhead- Element-wise, Functional and Behavioural; Need for of classifying overhead into fixed and variable; various types of overheads.

(b) *Manufacturing Overheads:* Allocation and apportionment of Overhead; Absorption of Overhead: various methods and their application; Treatment of under absorption/over absorption of overheads

[10 classes / 10 marks]

Unit 7

(1) Activity Based Costing: Problems of traditional costing; meaning of Activity Based Costing; cost analysis under ABC; advantages and disadvantages; factors influencing application of ABC; installation of ABC.

(2) Preparation of cost sheet

[4 + 6 = 10 classes / 10 marks]

Unit 8

Administration, Selling and Distribution Overheads

Concepts and types, classification and treatment in cost

Treatment of some special Items, e.g., Interest, Depreciation, Packing Expenses, Carriage Expenses, Machinery Erection, Tools, R&D Costs, Advertisement, Bad Debts, etc.

[10 classes / 10 marks]

Unit 9

Cost Book-keeping

(1) Non-Integrated System

Meaning & Features; Ledgers Maintained; Accounts prepared; General/Cost Ledger Adjustment Account; Meaning of Closing Balance in various accounts; Disadvantages.

(2) Reconciliation

Need for reconciliation (only under Non integrated System); Items causing differences between Cost and Financial Profits; Memorandum Reconciliation Statement / Account

[10 classes / 10 marks]

Unit 10

Job Costing (Job cost cards and databases, Collecting direct costs of each job, Attributing overhead costs to jobs, Applications of job costing).

Contract Costing - Progress payments, Retention money, Escalation clause, Contract accounts, Accounting for material, Accounting for plant used in a contract, Contract profit and Balance sheet entries. [10 classes / 10 marks]

Suggested Readings

- Horngren, Foster & Datar, Cost Accounting,- A Managerial Emphasis, PHI
- B.Banerjee, Cost Accounting, PHI
- Jawahar Lal & Seema Srivastava, Cost Accounting, TMH
- M.Y.Khan & P.K.Jain, Management Accounting, TMH
- R.Anthony, Management Accounting, Taraporewala
- Colin Drury, Management & Cost Accounting, Chapman & Hall
- Bhattacharyya K Asish, Cost Accounting for Business Managers, Elsevier

B.COM (GENERAL) Paper 2.6 Cg: AUDITING

MODULE I – 50 marks

Unit 1 Introduction (No.of Classes-12/ Marks 10)

- Definition-Nature-Scope and Objectives of Independent Financial Audit-Limitation.
- Basic Principles Governing an Audit-Relation between Accounting and Auditing.
- Errors and Fraud-Concepts, Means of doing Fraud, Purpose- Conditions which increase the Risk of Fraud and Error-Auditor's responsibility towards detection and reporting.
- Classification-Objective wise (Internal and Independent Financial audit), Periodicity wise (Periodical, Continuous, Interim, Final, Limited Review) Organization structure wise (Statutory, Non- statutory), Specific Matter Wise (Cost, Management, Tax, Social, Propriety, Performance etc.).

Unit 2 Auditing Procedure and Techniques

(Classes-10/ Marks 10)

- Auditing Engagement-Audit Planning-Audit Programme.
- Documentation-Audit Working Papers, Ownership and Custody of Working Papers-Audit File(Permanent, Current) – Audit note Book- Audit Memorandum.
- Audit Evidence-Concept, Need, Procedure to obtain Audit Evidence, Sources and Reliability, Methods.
- Preparation Before Commencement of a New Audit.

Unit 3 Internal Control and Internal Audit

(Classes 10 / Marks 10)

- Internal Check-Definition, Objective, Preparation of check-lists.

- Internal Control-Definition, Objectives, Evaluation, Internal control in Computerized Environment, ICQ and its Preparation, Comparison with Internal Check.
- Internal audit-Definition, Objectives, Regulatory Requirements(Companies Act), Reliance by Statutory Auditor on Internal Auditor's Work.

Unit 4 Audit Sampling and Analytical Procedure (Classes-8/ Marks 10)

- Concept, Need, and Types of Sampling- Sampling Risk-Stages in Audit
- Sampling.
- Test Checking-Auditing in Depth and Cut-Off checking.
- Analytical Procedure- Nature and Application of Analytical Procedure- Tools and Techniques of Analytical Procedure- Extent of Reliance on Analytical Procedure- Use of analytical procedure for Substantive Testing.

Unit 5 Audit (Vouching and Verification) of Different Items

(No of classes 10/ Marks 10)

- Vouching- Meaning, Objectives-Vouching of Different Items (Receipts and Payments Related).
- Verification – Concept, Objectives – Audit of Share Capital, Loans(Secured and Unsecured), Fixed assets (Building, Plant and Machinery, Loans and Advances, Investment, Goodwill, Copy Right, Patent Right Inventories, Debtors), Creditors, Preliminary Expenditures , etc.

*** Topics to be studied with reference to Relevant Standards on Auditing and Accounting including Applicable Indian Financial Reporting Standards.*

Paper 2.6 Cg: AUDITING

MODULE II – 50 marks

Unit 1 Company Audit

(No of Classes 12/ Marks 12)

- 1.Qualification, Disqualification, Appointment, Removal, Remuneration of Auditors.
- Audit Ceiling-Status, Power, Duties and Liabilities of auditors.
- Branch Audit-Joint Audit- Special Audit.
- Maintenance of Books of Account.
- Divisible Profit, Dividend and Depreciation (Companies Act, Standards on Accounting, Legal Decisions and Auditor's Responsibility).

Unit 2 Audit Report and Certificate

(No. of Classes 10/ Marks 12)

- 1.Definition-Distinction between Report and Certificate- Types of Reports/Opinion
- (Clean, Qualified, Disclaimer, Negative and Piecemeal)
- Contents of Audit Report(As per Companies Act and Standards on auditing).
- True and Fair View (Concept and Guiding Factors)- Materiality(Concepts and Relevance).

Unit 3 Audit of Different Institutions

(No. of Classes 5 / Marks 8)

Educational Institutions and Hospital

Unit 4 Investigation

(No. of Classes 6/ Marks 8)

- Meaning, Purpose- Distinction between Investigation and Auditing Approach to
- Investigation- Types of Investigations.
- Investigations to Detect Fraud, Misappropriations and Defalcations.

Unit 5 Other Thrust Areas

(No. of classes 12/ Marks 10)

- Cost Audit- Concepts, Objectives, Advantages, Relevant Provisions of Comp. Act.
- Management Audit- Tax Audit- Systems Audit- Social Audit- Environment Audit
- Energy Audit -Peer review (Concepts, Objectives and Regulatory Requirements).

*** Topics to be studied with reference to Standards on Auditing and Accounting including Applicable Indian Financial Reporting Standards.

Suggested Readings

- Gupta Kamal, Contemporary Auditing, TMH
- Tandon, B.N., Principles of Auditing, S. Chand & Co.
- Sharma T.R., Auditing Principles & Problems, Sahitya Bhavan, Agra
- Spicer & Pegler, Practical Auditing
- Woolf, Emile, Auditing Today
- Basu, Sanjib Kumar, Nirikshar Tattwa-o- Koushal (Bengali), Pearson
- Auditing Assurance Standards and Guidelines issued by ICAI

B.Com. General

**Paper 3.1 GA :FINANCIAL ACCOUNTING – III
MODULE-I: 50 Marks**

Unit	Topic	Details	Marks allotted	No. of lectures
1	Company Final Accounts	Introduction to Schedule VI; Rules for Managerial Remuneration; Dividend and applicable tax; compulsory transfer to reserve; Preparation of Profit & Loss A/C and Balance Sheet (tax on net profit without recognizing deferred tax)	18	15
2	Company Merger And Reconstruction	<ul style="list-style-type: none"> • Amalgamation, Absorption and Reconstruction– Meaning; relevant standard and meaning of different terms, Accounting in the books of Transferor Company. Accounting in the books of Transferee (amalgamation in the nature of Purchase only); inter-company transactions and elimination of common debtors & creditors only. (excluding inter-company share holding). Preparation of Balance Sheet. • Internal reconstruction – meaning, provisions and Accounting, preparation of Balance Sheet after reconstruction 	16	16
3	Introduction to Accounting Standard	Financial accounting standards: concept, benefits, procedure for issuing accounting standards in India. Salient features of Accounting Standard (AS): 1 (ICAI). IFRS (concept only).	16	15
	Business Acquisition	<ul style="list-style-type: none"> • Profit/ loss prior to incorporation; and Accounting for business acquisition 		

	Valuation	Goodwill – valuation using different methods, i.e., Average Profit and Super Profit, Shares – Valuation using different methods: Intrinsic value, Earning Yield value and Fair Value (simple type)		
			50	46

**B.Com. General Paper 3.1 GA :FINANCIAL ACCOUNTING – III
(MODULE-II): 50 Marks**

Unit	Topic	Details	Marks allotted	No. of lectures
1	Holding Company	Meaning of Holding Company & Subsidiary Company; relevant standard; Consolidation of Balance Sheets of Parent & Subsidiary (only one); Minority Interest – Basic principles and preparation of CBS; CBS with loss balance of Subsidiary Treatment for: Revaluation of Assets of Subsidiary, Intra-group Transactions, and Holding of equity shares only. (excluding shares acquired on different dates by the Parent company, chain and cross holding)	20	18
2	Introduction to Accounting Theory	Concept of accounting theory; relation with practice; GAAP; Capital – capital maintenance concepts, relation with income; Limitations of Historic Cost accounting; Introduction to Fair Value accounting	15	15
3	Introduction to Financial Statements	<ul style="list-style-type: none"> • Nature and Component of Financial Statement; Meaning and Need for FSA, Traditional & Modern approaches to FSA, Parties interested in FSA. • Historic cost – its limitation, concept of fair value. Capital maintenance. • Comparative Statement – meaning, preparation, uses, merits and demerits • Common-size Statement - meaning, preparation, uses, merits and demerits 	15	12
			50	45

Suggested Reading

- Sukla, Grewal, Gupta: Advanced Accountancy Vol. II, S Chand
- R. L.Gupta & Radheswamy, Advanced Accountancy Vol. II, S. Chand
- Maheshwari & Maheshwari, Advanced Accountancy Vol. II, Vikash Publishing House
- Sehgal & Sehgal, Advanced Accountancy Vol. I II, Taxman Publication
- Hanif & Mukherjee, Corporate Accounting, TMH
- L.S.Porwal, Accounting Theory, Tata Mcgraw Hill
- Gokul Sinha, Accounting Theory & Management Accounting,
- B. Banerjee, Regulation of Corporate Accounting & Reporting in India, World Press.
- Accounting Standards issued by ICAI
- Lev, Financial Statement Analysis-a new approach, Prentice Hall
- Foster G, Financial Statement Analysis, Prentice Hall
- White, Sondhi& Fred, Analysis and use of Financial Statement, John Wiley
- Bernstein & Wild, Financial Statement Analysis; theory, application & interpretation, Mcgraw Hill

- Bhattacharyya Asish K, An introduction to Financial Statement Analysis, Elsevier

B.Com.General (Elective- Accounting & Finance)
Paper 3.2 GA: COST & MANAGEMENT ACCOUNTING 2
Module I – 50 Marks

[Each Unit is for 10 classes / 10 marks]

Unit 1

Service Costing And Output Costing:- Introduction; Motor Transport Costing, Staff Canteen Costing, Hospital Costing, Boiler House Costing.

Unit 2

Process Costing (1) Meaning, Features, Process vs Job Costing, Principles of cost ascertainment for Materials, Labour & Overhead. Normal loss, Abnormal loss and gain and preparation of process accounts.

Unit 3

Process Costing (2)

Inter-process profit- Meaning, Advantages and Disadvantages and determination of stock value for the purpose of balance sheet.

Joint products and by products – Concept of Joint products and by-products; Apportionment of common costs to joint products, and costing of By Products.

Unit 4

CVP Analysis Introduction; CVP Assumptions and Uses; Break-Even Analysis: BE Point and Margin of Safety; Graphical presentation of CVP Relationship; Profit Graph.

Unit 5

Marginal Costing and Management Decisions - Marginal costing Techniques; Marginal Cost and product Pricing; Product Mix and Make or Buy Decisions, Shut Down Decisions (simple Type).

Paper 3.2 GA: COST & MANAGEMENT ACCOUNTING 2

Module II – 50 Marks

Unit 6

Budgetary Control: Budget and Budgetary Control; The budget manual, principal budget factor, preparation and monitoring procedures, preparation of functional budgets for operating and non operating functions, cash budget, master budget, flexible budget, budget variances.

Unit 7

Standard Costing. Standard Costs and Standard Costing; Uses, & Importance. Differences with Budgetary Control, Preliminary Steps. Classification of Standards. Setting up Standards

for Materials, Labour and Overheads. analysis and computation of materials, Labour and Overhead Costs Variances.

Unit 8

Financial Statement Analysis (1)

Concept, Objectives, Benefit and Limitations, of Financial Statement Analysis; Tools of Analysis; Value Added Statements, Economic Value Added (elementary level).

Unit 9

Financial Statement Analysis (2)

Ratio Analysis for performance evaluation and financial health; Application of Ratio Analysis in decision making; Inter-firm comparison.

Unit 10

Statement of Changes in Financial Position- Meaning of Changes in Financial Position; Statement of Changes in Financial Position- Working Capital Basis, Cash Basis, Total Resources Basis. Fund Flow and Cash Flow statements and AS-3 (Simple Type)

Suggested Readings

- Cost Accounting,- A Managerial Emphasis, Horngren, Foster & Datar, PHI
- Cost Accounting, B.Banerjee, PHI
- Cost Accounting, Jawahar Lal & Seema Srivastava, TMH
- Management Accounting, M.Y.Khan & P.K.Jain, TMH
- Management Accounting, R.Anthony, Taraporewala
- Management & Cost Accounting, Colin Drury, Chapman & Hall
- Financial Policy & Management Accounting, B.Banerjee, PHI
- Cost Accounting for Business Managers. Bhattacharyya Asish K, Elsevier

General (Elective - Accounting & Finance)
Paper 3.3GA: FINANCIAL MANAGEMENT

Module I – 50 Marks

[Each Unit is for 10 classes / 10 marks]

Unit 1

Introduction

- Important functions of Financial Management
- Objectives of the firm: Profit maximisation vs. value maximisation
- Role of Chief Financial Officer.

Unit 2

Basic concepts

- Time Value of Money: Compounding and Discounting techniques- Concepts of Annuity and Perpetuity.
- Risk-return relationship
- Financial environment in which a firm has to operate

Unit 3

Sources of finance and cost of capital

- Different sources of finance; long term and short term sources
- Cost of capital: concept, relevance of cost of capital, specific costs and weighted average cost, rationale of after tax weighted average cost of capital, marginal cost of capital

Unit 4

Leverage and capital structure theories

- Leverage- Business Risk and Financial Risk - Operating and financial leverage, Trading on Equity
- Capital Structure decisions - Capital structure patterns, Designing optimum capital structure, Constraints, Various capital structure theories.

Unit 5

Working Capital Management (1)

Introduction; Meaning and Concept of Working Capital; Management of Working Capital and Issues in Working Capital; Estimating Working Capital Needs; Operating or Working Capital Cycle.

Paper 3.3GA: FINANCIAL MANAGEMENT

Module II – 50 Marks

Unit 6

Working Capital Management (2)

- Various sources of finance to meet working capital requirements
- Financing current assets: Strategies of financing (Matching, Conservative, and Aggressive policies)
- Bank financing: recommendations of Tandon committee and Chore committee
- Management of components of working capital (an introduction only)

Unit 7

Capital Expenditure Decisions (1)

Purpose, Objectives & Process, Understanding different types of projects, Techniques of Decision making: Non-discounted and Discounted Cash flow Approaches - Payback Period method, Accounting Rate of Return

Unit 8

Capital Expenditure Decisions (2)

Net Present Value, Profitability Index, Internal Rate of Return, Discounted Payback Period. Ranking of competing projects, Ranking of projects with unequal lives. Capital Rationing (Elementary Level).

Unit 9

Dividend Decisions

- Meaning, Nature and Types of Dividend
- Some dividend policies and formulating a dividend policy
- Dividend Theories: Walter's Model, Gordon's Model, Modigliani and Miller: Irrelevancy Theory (Introductory Level)

Unit 10

Financial Control

Concept, Objectives and Steps, Major Tools of Financial Control, Advantages and Limitations of Financial control system.

Suggested Readings

- Financial Management, M.Y.Khan & P.K.Jain, TMH
- Financial Management & Policy, Van Horne, Pearson
- Fundamentals of Financial Management, Van Horne, PHI
- Financial Policy & Management Accounting, B.Banerjee, PHI
- Financial Management, P.Chandra, TMH
- Bhadra & Satpati, Arthik Byabasthapana (Bengali Version), Dishari

3RD year

B.COM GENERAL: ELECTIVE GROUP - MARKETING
Paper 3.1 GM: CONSUMER BEHAVIOUR AND SALES
MANAGEMENT

Module I : Consumer Behaviour (50 marks)

Unit

1. **Consumer Behaviour:** Concept: Application of Consumer Behaviour Knowledge Consumer Behaviour and Market Segmentation. (L-10 / M-10)
2. **Consumer Behaviour:** Determinants Consumer as an Individual, Needs, Motivation, Personality, Perception, Learning Attitude; Consumers in their Social & Cultural Setting. (L-10 / M-10)
3. **Consumer's Decision-making Process:** Personal Influence & Opinion, Leadership Process, Consumer decision making process. (L-10 / M-10)
4. **Consumer Behaviour & Society:** Health-care Marketing, Social Marketing, Environmental Marketing & Consumer Protection. (L-12 / M-10)
5. **Consumer Behaviour and Market Research :** Relevance of Marketing Information System and Market Research in assessing Consumer Behaviour. (L-12 / M-10)

References:

- Schiffman & Kanuk, *Consumer Behaviour*, PHI
- Loudon & Bitta, *Consumer Behaviour*, Tata McGraw Hill
- Bennet & Kassarijan, *Consumer Behaviour*, PHI
- Batra & Kazmi, *Consumer Behaviour, Text & cases*, Excel Books
- Beri, *Marketing Research*, Tata McGraw Hill
- Bradley, *Marketing Research*. Oxford University Press

Paper 3.1 GM: CONSUMER BEHAVIOUR AND SALES
MANAGEMENT

Module II: Sales Management (50 Marks)

Unit

1. **Sales Organization :** Ever-growing complexity of Sales Organisation, Different Models of Sales Organisation, Factors determining Sales Organisation Structure, Common Problems associated with Structuring the Sales Organisation. (L-10 / M-10)
2. **Designing the Sales Force :** Objectives, Strategies, Structure, Size and compensation of sales Force. (L-6 / M-5)
3. **Managing the Sales Force :** Recruitment, Selection, Placement, Transfer, Training and Development and Grievance Handling of Sales Force, Motivating Leading and Communicating with the Sales Force, Performance Evaluation of Sales Force. (L-12 / M-10)

4. **Personal Selling and Salesmanship** : Buyer-Seller Dyads, Theories of selling, Personal Selling as a Career, Steps in Personal Selling, Methods of Approaching a Customer, Handling Customer Objections, Negotiations. (L-12 / M-10)
5. **Marketing Channels and Selection** : Need, Functions, Levels; Identifying and Analyzing Customers' Needs for Products/Services, Developing Channel Objectives, Selection of Appropriate Channel. (L-10 / M-10)
6. **Channel Management** : Motivating, Leading, Communicating with and Performance Evaluation of the Channel Members. (L-5 / M-5)

Suggested Readings

- Cundiff, Still and Govoni, *Sales Management*, PHI
- Smith, *Sales Management* PHI
- Kotler, *Marketing Management* PHI
- Zieglar, et al *Sales Promotion and Modern Merchandising*
- Stem, Ansary and Coughlan *Marketing Channels*, PHI
- Warmer, *Marketing and Distribution*, Macmillan
- Pyle, *Marketing Principles*, Macmillan
- Doughlas, et al *Fundamentals of Logistics and Distribution*, TMH
- Gupta, *Sales and Distribution Management*, Excel Books

Paper 3.2 GM: PRODUCT AND PRICING MANAGEMENT & RURAL MARKETING

Module I: Product and Pricing Management (50 marks)

Unit

1. **Product** : Concept, Product Portfolio, PLC Operationalisation. (L-10 / M-10)
2. **New Product Development** : Concept, Planning Adoption process, Integrated approach to New Product Development, Test Marketing and New Product Launch. (L-10 / M-10)
3. **Packaging** : Concept, Importance, Packaging and Product Differentiation, Packaging Strategies. (L-10 / M-10)
4. **Branding** : Name and Selection process, Trademark, Positioning Strategies, Repositioning. (L-10 / M-10)
5. **Pricing** : Concept, Target Cost, Resale Price, Importance of Pricing in Consumer Buying Process, Factors Determining Effectiveness of Price, Various aspects of Service Pricing , Pricing Methods, Price Cartel, Pricing in the Indian Context. (L-12 / M-10)

Suggested Readings

- Kotler, *Marketing Management*, PHI
- William and Ferrell, *Marketing*, Houghton Mifflin, Boston
- Stanton, Etzel and Walker, *Fundamentals of Marketing*, McGraw-Hill, New York.
- Neelamegham, *Marketing in India: Cases and Readings*, Vikas Publishing, New Delhi
- Majumder, *Product Management in India*, Prentice Hall, New Delhi
- McCarthy and Perreault, *Basic Marketing Managerial Approach*, Irwin, Homewood, Illinois
- Ramaswamy and Namakumari, *Marketing Management*, Macmillan India, New Delhi

- Srinivasan, *Case Studies in Marketing: The Indian Context*, Prentice Hall, New Delhi

Paper 3.2 GM: Product and Pricing Management & Rural Marketing

Module II: Rural Marketing (50 Marks)

Unit

1. **Rural Marketing** : Importance, Nature and Scope. (L-5 / M-5)
2. **Understanding Rural Marketing Environment** : Geographic, Economic, Socio-Cultural and Infrastructural factors and their influence on Rural Marketing Operations. (L-12 / M-10)
3. **Rural Consumer** : Characteristics, Attitudes and Behaviour, Buying Patterns and Influences. (L-10 / M-10)
4. **Rural Marketing Strategies** : Segmenting Rural markets, Product Planning for Rural Markets. (L-6 / M-5)
5. **Promotion and Distribution in Rural Markets** : Promotion in Rural Markets, Distribution Channels and Logistics in Rural Markets. (L-10 / M-10)
6. **Marketing of Agricultural Products** : Pricing and Distribution of Agricultural products, Role of Government and other organizations in Marketing Agricultural Products; Co-operative Marketing. (L-12 / M-10)

Suggested Readings

- Rajagopal *Management of Rural Business*, Wheeler, New Delhi
- Neelamegham, *Marketing in India: Cases and Readings*, Vikas Publishing, New Delhi
- Gopalswamy, *Rural Marketing*, Wheeler, New Delhi
- Nyar and Ramaswamy, *Globalization and Agricultural Marketings*, Rawat Publishers, Jaipur
- Mamoria, *Agricultural marketing*, Himalaya Publishing House, New Delhi

Paper 3.3 GM: RETAIL MANAGEMENT & MARKETING OF SERVICES

Module I: Retail Management (50 Marks)

Unit

1. **Retailing** : Concept, Importance, Functions, Development of Retailing in India, Factors determining Growth of Retailing in India. (L-16 / M-15)
2. **Retail Formats** : Concept, Classification, Multi-channel retailing. (L-16 / M-15)
3. **Pricing and Promotion in Retail** : Importance of Retail Pricing, Factors affecting Pricing, Approaches to Product Pricing, Need and Objectives of Promotional Mix in Retailing, Customer Relationship Management. (L-20 / M-20)

Paper 3.3 GM: RETAIL MANAGEMENT & MARKETING OF SERVICES

Module II: Marketing of Services (50 Marks)

Unit

1. **Introduction to Services Marketing** : Services— types, nature, characteristics, Understanding Service Customers, Reasons for Growth . (L-16 / M-15)
2. **Service Marketing Management** : Service Marketing Mix— Elements. Managing Service Quality, Relationship Marketing . (L-16 / M-15)
3. **Service Marketing in Non-profit and Profit Organisations** : Travel and Tourism, Financial Services, Information Technology Services, Media Services, Health Care Services, Educational Services. (L-20 / M-20)

Suggested Readings

- Madaan, *Fundamentals of Retailing*, Tata McGraw-Hill, New Delhi
- Venugopal and Raghu, *Services Marketing*, Himalaya Publishing Ltd., New Delhi
- Ravi Shankar, *Services Marketing: The Indian Perspective*, Excel Books
- Rampal & Gupta, *Services Marketing, Concepts, Applications & Cases*, Galgotia Publishing
- Apte, *Services Marketing*, Oxford University Press, New Delhi
- Kriplani, *International Marketing*, Prentice Hall, New Delhi
- Taggart and Mott, *The Essence of International Business*, Prentice Hall, New Delhi
- Kotler, *Principles of Marketing*, Prentice Hall, New Delhi
- Caterora and Keavenay, *Marketing: an International Perspective*, Irwin, Homewood, Illinois
- Paliwala, *The Essence of International Marketing*, Prentice Hall, New Delhi
- Vasudeva, *International Marketing*, Excel Books

BCOM PART-III (GENERAL) Elective Group -TAXATION) Paper 3.1 GT: DIRECT TAX LAW AND PRACTICE MODULE 1 – 50 Marks

Unit 1: a) Residential Status and Incidence of Tax

Residential status of a company, Incomes deemed to accrue or arise in India u/s 9

- b) Income which do not form part of Total Income**
Sec 10A, 10AA, 10B, 10BA

(L-10/M-10)

Unit 2: Heads of Income and Provisions Governing Heads of Income

a) Profits and gains from business and profession

Advance level discussion with special emphasis on presumptive taxation

b) Capital Gains

Advance level discussion with special emphasis on transfer, treatment u/s 45(1A), 45(2), 45(3), 45(4), 45(5), taxability of financial assets and exemptions

c) Income from other sources

Advance level discussion with special emphasis on deemed dividend

(L-35/M-30)

Unit 3: a) Income of other Persons included in Assessee's Total Income

Revocable transfer of assets, Income from assets transferred to the benefit of spouse and son's wife, Conversion of self acquired property into joint family property

b) Deductions from Gross Total Income

Deductions u/s 80IAB, 80IC, 80ID, 80IE

(L-5/M-10)

MODULE 2 – 50 Marks

Unit 1: Computation of Total Income and Tax Payable

Advance level problems on computation of total income and tax liability of an Individual, HUF, Firm and AOP

(L-25/M-25)

Unit 2: a) *Relief U/S 89*

b) *Double Taxation Relief*

c) *Forms for Individual Assessee (Features and filling up of Forms)*

(L-10/M-10)

Unit 3: Wealth Tax

Advance level discussion with special emphasis on basic concept of valuation of let-out building, Advance level problem on computation on net wealth and tax payable

(L-15/M-15)

Suggested Readings

- Singhanian V.K., and Singhanian K, Direct Tax Law and Practice, Taxmann
- Lal and Vashist, Direct Taxes, Pearson
- Gupta and Ahuha, Direct Taxes Law And Practice, Bharat

Paper for B.Com. General: Elective Group- Taxation
PAPER 3.2 GT: INDIRECT TAX LAW AND PRACTICE

MODULE 1: 50 Marks

Unit 1: a) **Basic Concepts**

Concepts of Indirect Tax, Difference between Direct And Indirect Tax, Indirect tax structure in India.

b) CENTRAL EXCISE ACT, 1944

(L-30/M-30)

Unit 2: WB VAT ACT 2003

(L-20/M-20)

MODULE 2: 50 Marks

Unit 1: CUSTOMS ACT, 1962

(L-25/M-25)

Unit 2: a) CENTRAL SALES TAX ACT, 1956

b) SERVICE TAX

(L-25/M-25)

Suggested Readings

- Datey V.S., Indirect Taxes Law And Practice, Taxmann
- Sanjeev Kumar, Systematic Approach to Indirect Taxes, Bharat
- Bangar and Bangar, Students' Guide to Indirect Taxes, Aadhya Prakashan

Paper for B.Com. General: Elective Group -Taxation
PAPER 3.3 GT: TAX PLANNING AND PROCEDURE

MODULE 1: 50 Marks TAX PROCEDURE

Unit 1: Return of Income

(L-10/M-10)

Unit 2: Assessment of Return

(L-10/M-10)

Unit 3: a) Advance Tax

b) Interest

- c) Advance Ruling for Non-Resident (L-12/M-10)
- Unit 4:** a) TDS
b) Refund of Excess Payment (L-10/M-10)
- Unit 5:** a) Penalties and Prosecutions
b) Appeals and Revisions
c) Income Tax Authorities (L-8/M-10)

**MODULE 2: 50 Marks
TAX PLANNING**

- Unit 1: Basic Concepts** (L-3/M-5)
a) Concept and difference between tax planning, tax avoidance and tax evasion
b) Objectives, requisites, factors and types of tax planning
- Unit 2:** a) Tax Planning under different Heads of Income
b) Tax Planning on Deductions under Chapter VIA (L-12/M-10)
- Unit 3:** a) Setting up a New Business
Location, nature and form of business
b) Financial Management Decisions
Capital structure, dividend policy (including inter corporate dividend) and bonus shares
c) Tax Planning related to Amalgamation and Demerger (L-10/M-10)
- Unit 4: Specific Managerial Decisions**
Make or buy, own or lease, own fund versus borrowed fund for financing of assets, shut down or continue, sale in domestic market or export, repair or replacement (L-17/M-15)
- Unit 5:** a) Tax planning in relation to Employees Compensation
b) Relief for Double Taxation (L-8/M-10)

This syllabus is applicable to the students of third year who will be appearing in the Examinations in 2013. Direct Tax Code covering all Direct Taxes and Goods and Service Tax Act covering all Indirect Taxes are going to be effective w.e.f 1.4.2011. In view of the expected changes only the chapter headings are given without detailed coverage under each unit. The detailed syllabus will be prepared after the passing of the two Acts.

Suggested Readings

- Singhanian V.K., and Singhanian K, Direct Tax Law and Practice, Taxmann
- Lal and Vashist, Direct Taxes, Pearson
- Gupta and Ahuja, Direct Taxes Law And Practice, Bharat
- Singhanian V.K., and Singhanian M, Corporate Tax Planning and Business Tax Procedure, Taxmann

B.Com. General: Elective Group -Computer Applications & e-Business

3.1 GeB: Fundamentals of Computer

Module I : 50 marks

1. **Computer Basics:** Characteristics of computer. Generations of computer. Type of computer – Mainframe, Mini, Micro (desktop, laptop and handheld), Super Computer. Inside a Computer – Power supply (SMPS), Motherboard, Ports and interfaces, Expansion Cards, memory Chips, Ribbon Cables, Storage devices, Processor. [15 lectures / 30 marks]

2. **CPU Organisation and Architecture:** Arithmetic/Logic Unit (ALU), control Unit (CU), Registers, System Bus, Processor to Memory Communication Processor to I/O devices Communication. [12 lectures / 20 marks]

Module II : 50 marks

3. **Memory Organization:** Memory representation, Cache memory, Primary memory – RAM and ROM. Functions of RAM and ROM. Different types of RAM and ROM. Secondary memory – Magnetic and optical storage devices (brief description of different types). Storage organization of a Magnetic disk. Mass storage devices – RAID, Automated Tape Library. [11 lectures/ 16 marks]

4. **Input and Output Devices:** Major types and their functions. [6 lectures/ 10 marks]

5. **Operating System:** Concept, types, functions. [6 lectures/ 8 marks]

6. **Flow Charts-** Concepts, advantages and disadvantages of flowcharts, Problem solving using flowcharts. [5 lectures/ 8 marks]

7. **Multimedia Essentials:** Definition, building blocks of multimedia, multimedia system, multimedia application. [5 lectures/ 8 marks]

Suggested Readings

- ITLESL, Introduction to Computer Science, Pearson
- ITLESL, Introduction to Information Technology, Pearson
- Sinha & Sinha, Fundamentals of Computers, BPB Publication.
- Rajaraman, Fundamentals of Computers, PHI

Paper 3.2 GeB: Data Communication and Networking

Module I: Marks: 50

Unit 1. Transmission Modes: Simplex, Half-Duplex, Full Duplex. Analog and digital transmission. Synchronous and Asynchronous transmission. Multiplexing.

[6 lectures/ 10 marks]

Unit 2. Network Types: LAN, WAN, MAN, VAN, SAN.

[4 lectures/ 6 marks]

Unit 3. Network Topologies: Bus, Star, Ring, Mesh, Tree.

[4 lectures/ 6 marks]

Unit 4. Protocol Models: OSI, TCP/IP

[4 lectures/ 6 marks]

Unit 5. Internet Concepts: WWW, Internet and E-Commerce, Linking to the Internet, Internet Address. Communication Tools (Email, FTP, Telnet, Usenet), Domain Name System.

[6 lectures/ 8 marks]

Unit 6. Intranet and Extranet: Intranet, Intranet vs. Groupware, Intranet Hardware, Intranet Software, Communication Systems (Email, Fax), Extranet.

[4 lectures/ 6 marks]

Unit 7. Network Security: Network security threats - Malicious code (Malware), Hacking, Credit card frauds. Spoofing, Sniffing Firewall (Concept, Components and Constituents, Benefits), Enterprise wide security Framework, secure physical infrastructure).

[6 lectures/ 8 marks]

Paper 3.2 GeB: Functional e-Business System

Module II : Marks: 50

Unit 1. Applications of E-Business: Direct Marketing and Selling, Value Chain Integration, Supply Chain Management, Corporate Purchasing, Financial and Information Services, Obstacles in adopting E-Business Applications.

[6 lectures/ 8 marks]

Unit 2. E-Strategy: Information and Strategy, The virtual value chain planning E-Business project, E-Business strategy and knowledge management.

[4 lectures/ 6 marks]

Unit 3. Customer –effective Web design: Requirements of Intelligent Websites, Website Goals and Objectives, planning the budget, analyzing website structure, fixed versus flexible webpage design, choosing a page size, website development tools, design alternatives, outsourcing web design, testing and maintaining websites.

[6 lectures/ 8 marks]

Unit 4. Electronic Payment Systems-Overview of Electronic Payment Systems, Customer to Merchant Payments, Peer to Peer Payments. Electronic Banking, Electronic Fund Transfers.

[5 lectures/ 8 marks]

Unit 5. E-Business Marketing Concepts: Basic marketing concepts for internet marketing, E-Business marketing and branding strategies, Strengthening the customer relationship.

[4 lectures/ 6 marks]

Unit 6. E-Commerce and Online service industries: Online financial services. Online travel services. Online career services.

[3 lectures/ 4 marks]

Unit 7. Mobile Commerce- Wireless Spectrum, WAP - Origins of WAP, WAP Architecture. Wireless Datagram Protocol (WDP), Short Message Services, General Packet Radio Service (GPRS), Wireless Technology (CDMA, GSM), Different generations in Wireless Communication, Mobile commerce and its future in India.

[6 lectures/ 10 marks]

Suggested Readings

- S. Jaiswal, Doing Business on the Internet E-COMMERCE (Electronic Commerce for Business), Galgotia Publications.
- P.T. Joseph, S.J., E-Commerce An Indian Perspective, PHI.
- Kenneth C. Laudon, Carol Guerico Traver, E-Commerce Business. Technology. Society, Pearson
- Schneider, E-Commerce, Thomson Publication

Paper 3.3 GeB: Computer Application (Practical)

Module I : Total Marks: 50

Unit 1: C++

[25 classes / 25 marks]

Unit 2: Use of Accounting software package – ACE, TALLY

[25 classes / 25 marks]

Paper 3.3 GeB: E-Business Application (Practical)
(Module II): Total Marks: 50

Unit 1: HTML & DHTML

[20 classes / 20 marks]

Unit 2: JAVA

[30 classes / 30 marks]

1. OOPS Concept and Introduction to JAVA. 2. An overview of Java. 3. Data Types - variables and arrays. 4. Operators, Control statements. 5. Classes and objects. 6. Inheritance. 7. String and string buffer. 8. Exception handling. 9. Applets.



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Dept. of comp. Sc.
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UNIVERSITY OF CALCUTTA

Notification No. CSR / 24 / 11

It is notified for the information of all concerned that on the recommendation of the Council for U.G. Studies in Arts, Science, etc. dated 11.04.2011, the Vice-Chancellor has, by an order dated 03.05.2011, been pleased to approve **revision to the existing syllabi for the B.Sc.(Honours and General) Courses of Studies in Computer Science** under this University, as laid down in the accompanying pamphlet, for being implemented from the Academic Session 2011-2012.

SENATE HOUSE
KOLKATA - 700 073
The 3rd May, 2011

Handwritten signature and date:
03-05-11
(Prof. Basab Chaudhuri)

Registrar

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UNIVERSITY OF CALCUTTA

*Three-year B.Sc. (Honours & General) Courses of Studies in
Computer Science effective from the Academic Session 2011-2012*

Computer Science Honours Course Course Structure

Paper	Type/Marks	Group	Title	Periods
Part-I				
I	Theoretical 100	A	Computer Fundamentals	30
		B	Introduction to Basic Electronics	35
		C	Digital System Design	45
		D	Computer Organization-I	40
II	Theoretical 50	A	Section-I: System Software Fundamentals and Operating Systems	50
	Practical 50	B	Section-II : Data Structure-I Hardware	25 150
Part-II				
III	Theoretical 100	A	Discrete Mathematical Structures	75
		B	Numerical Methods and Algorithms	45
		C	Formal Languages and Automata Theory	30
IV	Theoretical 50	A	Section-I : Data Structure-II	30
	Practical 50	B	Section-II : Programming through C Language Software : C Language	45 150
Part-III				
V	Theoretical 100	A	Microprocessor	50
		B	Computer Organization- II	50
		C	Computer Networks	50
VI	Theoretical 100	A	Object-Oriented Programming	30
		B	Software Engineering	30
		C	Computer Graphics	30
		D	Database Management System	60
VII	Practical 100	A	Hardware : Microprocessor Programming & I/O Interfacing	100
		B	Software: RDBMS	50
VIII	Practical 100	A	Object-Oriented Programming	100
		B	UNIX Shell Programming	50

PART – I

PAPER – I (THEORETICAL): 100 Marks

Group A: Computer Fundamentals

(30 Periods)

Introduction to Computer and Problem Solving: Information and Data.

Hardware: CPU, Primary and Secondary storage, I/O devices

Software: Systems and Application.

Generation of Computers: Super, Mainframe, Mini and Personal Computer.

Introduction to Programming Languages: Machine Language, Assembly Language, High Level Language.

Problem Solving: Flow Charts, Decision Tables and Pseudo codes. (8)

Number Systems and Codes:

Number representation: Weighted Codes, Non-weighted codes, Positional, Binary, Octal, Hexadecimal, Binary Coded Decimal (BCD), Conversion of bases. Complement notions. Binary Arithmetic, Binary Codes: Gray, Alphanumeric, ASCII, EBCDIC; Parity Bits. Single Error-Detecting and Correcting Codes, Hamming Codes, Fixed and Floating Point Arithmetic: Addition, Subtraction, Multiplication and Division. (12)

Boolean Algebra:

Fundamentals of Boolean Algebra, Switches and Inverters, Functionally Complete Gates (AND, OR, NOT), NAND, NOR. Switching function and Boolean function. De Morgan's theorem, Minterm and Maxterm, Truth table and minimization of switching function up to four variables, Algebraic and K-map method of logic circuit synthesis: Two level and Multi level. (10)

Group B: Introduction to Basic Electronics

(35 Periods)

Elementary circuit theory: Kirchoff's Laws with simple applications, Statement and illustration of Thevenin's & Norton's theorems (without proof) in resistive network only & its simple applications. (2)

Elementary Physics of semi-conductors: Intrinsic and Extrinsic semiconductors, P & N type, Diode & its applications: Types of diodes, P-N Junction diodes, Biasing of a junction diode, Depletion region & its effect, Zener diodes & its applications, Diode as a rectifier, LED. (7)

Bipolar Junction Transistor: Principle of junction transistor, current components of transistor, modes of a transistor (CB, CE and CC) and their properties, I/O characteristics of a transistor in CE mode. Relation between α & β -parameters of transistor, biasing of a transistor: Q point, load line, Self-bias, fixed bias & collector to base bias and stability factors. Transistor as an amplifier (8)

Inverters using Transistors: Transfer characteristics and threshold voltages. Switching characteristics of diodes and transistors-SCR. (2)

Unipolar Junction Transistor: Principle of FET and MOSFET, Depletion and Enhanced modes of operations, Characteristics and definition of different parameters, Symbols and Application for switching functions. Concept of NMOS, PMOS and CMOS switch. (8)

Operational Amplifier : Principle of differential amplifiers, CMRR of differential amplifiers, properties of ideal Op-amp, transfer characteristics of op-amp, concept of virtual ground, offset parameters and its uses as an inverting, non-inverting amplifiers, adder/subtractor, differentiator, integrator and scale changer, Schmitt trigger. Principle of Multi-vibrators, applications of Multi-vibrators – Monostable, Bistable and Astable multivibrators. (8)

Group C: Digital System Design

(45 Periods)

Combinational Circuits: Realization of AND and OR Gates using diodes and NOT Gate using transistors, Standard Gate Assemblies, IC chips packaging nomenclature, Half and Full Adder(3 bits), Multi-bit adders – Ripple carry and Carry Look Ahead Adder, Adder/subtractor, BCD-Adder, Data selectors/multiplexers –

expansions, reductions, function realization, universal function realization, multi-function realization, Decoders/Demultiplexers: function realization, De-multiplexer and function realization, Encoder, Priority Encoder, Parity bit Generator/checker, Gray Code Generator, Code Converters, I/O features of BCD to 7- segment LED decoder/driver(7447/7448), Seven segment display unit, Comparators. (16)

Sequential Circuits: Model of Sequential computing, Difference between Combinational and Sequential circuit, RS-Latch: using NAND and NOR Gates, RS Latch as a Static RAM Cell, Problems of Basic Latch circuits, Digital Clock – Duty Cycle, Rising time, Falling time, Clocked Flip Flops - SR, JK, D, T, Level Trigger and Edge Trigger, Excitation Functions of each flip-flops, Flip-flops with Preset and Clear, Application of Flip-flops: Asynchronous Counter(UP/DOWN) up to 4 bit counter, Mod – n Counter, Synchronous Counters – different mod counters, Ring counter, Registers: Registers with serial and parallel load, Shift Registers. (17)

Data Converter: D/A Conversion principle using basic circuit, R-2R Ladder circuit, Counter based A/D converter, Successive approximation method for A/D conversion. DTL and TTL NAND gate circuits and its operations, Fan in & Fan out. Noise margin. SSI, MSI, LSI, and VLSI classifications. (12)

Group – D: Computer Organization – I

(40 Periods)

Basic Computer Organization - IAS Computer, Von Neumann Computer, System Bus. Instruction Cycle, Data Representation, Machine instruction and Assembly Language, CPU Organization, Arithmetic and Logic Unit, Control Unit, CPU Registers, Instruction Registers, Program Counter, Stack Pointer. (10)

Instruction: Operation Code and Operand. Zero, One, Two and Three address instruction. Instruction types. Addressing modes. Stack organization. (15)

Memory: Types of Memory, RAM, ROM, EPROM, EEPROM. Different storage technologies. I/O system organization and interfacing, Tri State Devices. (15)

Distribution of questions/Marks:

Q1. (Compulsory 10 short questions for 2 marks each). Five more questions to be answered from the remaining taking at least one from each group. There has to be at least eight questions other than question 1, two from each of the Groups.

(All questions other than question 1 are of 16 marks; questions may have subdivisions).

Text Books :

1. Introduction to Computer Science by P.K.Sinha, P. Sinha, (PHI)
2. Computer Fundamentals by Anita Goel, Pearson
3. Principles of Electronics by V.K. Mehta, S. Chand & Company Ltd.
4. Electronics Fundamentals and Applications by D.Chattopadhyay and P.C.Rakshit., New Age Intl (P)
5. Digital Circuits, Combinational Circuit, Vol 1 by D. Roy Choudhuri, Platinam Publication.
6. Digital Circuits, Sequential Circuit, Vol 2 by D. Roy Choudhuri, Platinam Publication.
7. Digital Logic and Computer Design by M.Morris Mano, PHI
8. Digital Principle and Applications by Malvino & Leach, TMH
9. Digital Systems Principles and Applications by Ronal J. Tocci and Neal S. Widmer, PHI
10. Digital Fundamentals by Floyd, Pearson Education
11. Computer Architecture and Organizations, J. P. Hayes, TMH
12. Computer System Architecture by M. Morris Mano
13. Computer Organization and Architecture by William Stallings, Pearson Education
14. Electronics Devices and Circuit Theory by Boylestad, Nashelsky, PHI
15. Integrated Electronics: Analog and Digital Circuits and Systems, J. Millman & C.C. Halkias, McGRAW Hill.
16. Electronics Principles, by A.P. Malvino, TMH.
17. Digital circuits by Sullivanan, Vikas Publication.

PAPER – II: 100 MARKS

Group – A (THEORETICAL): 50 Marks

Section - I: System Software Fundamentals and Operating Systems (50 periods)

System Software Fundamentals: Different System Software: A brief introduction to Operating Systems, Assemblers, Loaders, Linkers, Interpreters, Compilers, various phases of compilation. (10)

Introduction to Operating Systems: What is OS? Multiprogramming, Multitasking OS, Concepts of processes, Files, Shell, System Calls; Structures: Monolithic, Layered, Virtual, Client Server and Distributed Model. (4)

Concepts of Synchronization: Semaphores, Critical Regions, Monitor Inter Process Communication Mechanism.

Processor Management: Scheduling and its types. (7)

I/O Management: Device and Device Controllers, Interrupt Handlers and Device drivers. (4)

Memory Management: Real & Virtual memory, Swapping, Paging, Segmentation, Page Replacement Techniques. (3)

File Systems: Files and Directories, File Servers, Security and Protection, Disk Management. (7)

Dead Lock: Introduction, Prevention, Avoidance, Detection, Recovery. (4)

Case Study: UNIX/LINUX, WINDOWS. (7)

Case Study: UNIX/LINUX, WINDOWS. (4)

Section II: Data Structure-I (25 Periods)

Introduction: Concepts of Data types, Elementary structures, Data types and their interpretation. (2)

Arrays: Types, Memory Representation, Address Translation, Functions of single and multi-dimensional arrays with examples. (5)

Linked Structures: Singly and doubly linked list (non-circular and circular), List manipulation with pointers: Searching, Insertion and deletion of elements. (6)

Stacks and Queues: Representation, Uses and Applications, Infix, Prefix & Postfix notations, Infix to postfix: conversion and evaluation; Application of queues. (10)

Recursion: Divide and Conquer, elimination of recursion. (2)

Distribution of Questions/marks:

Q1. (Compulsory 4 short questions of 2 mark each). Three more questions are to be answered from the remaining taking two from Section I and one from Section II. There has to be six questions other than question 1, four from section I and two from section II.

(All questions other than question 1 are of 14 marks; questions may have subdivisions).

Text Books:

1. System Programming by John J. Donovan, TMH
2. Compilers Principles, Techniques and Tools, by Alfred V. Aho, Ravi Sethi and Jeffrey D. Ullman, Pearson Education
3. System Software - An Introduction to System Programming by Leland L. Beck, Pearson Ed., 3rd Ed.
4. Data Structure by Liptsuitz, S. Outline Series
5. Data Structure by Ellis Horowitz, Sartaz Sahani, Galgotia
6. Data Structure Using C by S. K. Bandyopadhyay and K. N. Dey, Pearson Education
7. Data Structures and Algorithm Analysis in C by Mark Allen Weiss, 2nd Edition, Pearson Education
8. Data Structure and Program Design in C by R. L. Kruse, C. L. Tondo and B. P. Luig, Pearson Education.
9. Operating Systems by H. M. Deitel, Pearson Education
10. Operating System Concepts by A. Silberschatz, P. B. Galvin, G. Gagne, John Wiley & Sons, Inc.

Group-B (Hardware Practical): 50 Marks**(150 Periods)***Pre-requisites:*

Study of IC Data Books – Linear and Digital. Familiarity with breadboard, LED, 7 segment display etc. Observe the output waveform of a function generator in a CRO. Mean Time Period, Peak Voltage, Frequency and comparison with function generator readings, Study of basic logic functions like AND, OR, NOT, NAND etc. Ideas of fan in, fan out, Noise Margin, Threshold Voltage, Transfer Characteristics, Design of a NOT Gate (inverter) using transistors. Design of a debouncing switch. Logic probe, Clock (crystal timer). Verification of NAND and NOR gates as universal gates, De Morgan's Theorem.

Analog Circuits

- 1) Use of Diodes to implement bridge rectifier. Observe the waveform on CRO. Measure peak values. Use three terminal regulator (IC 78XX) for voltage regulation. Drawing of load regulation characteristics.
- 2) Using Transistor to construct NOT or Invert Operation and draw the transfer characteristics and measure the threshold voltage.
- 3) OP-AMP: Close loop gains inverting and non-inverting OP-AMP. Use of OP-AMP as adder, subtractor, differentiator, integrator. For each case offset null arrangement has to be done.

*Digital Circuits:***Combinational Circuits:**

- 1) Implement Half Adder/Half Subtractor / Full Adder / Full Subtractor using Logic Gates. Realize a logic function using basic/universal gates in SOP and POS form. Study the functionalities of 7483 and design a BCD adder using 7483 or equivalent.
- 2) Design a 4 bit 2's complement adder – subtractor unit using 7483 or equivalent and XOR gates.
- 3) Design a circuit to convert BCD numbers to corresponding gray codes.
- 4) Design a 4:1 MUX using NAND gates. Study of 74153 and 74151. Design Full Adder / Subtractor using MUX.
- 5) Design a 2:4 decoder using NAND gates. Study of 74155 and 74138. Design Full Adder / Subtractor using decoders.
- 6) Design a parity generator/checker using basic gates.
- 7) Design magnitude comparator using basic/universal gates. Study of 7485.
- 8) Design a seven segment display unit.

Sequential Circuits:

- 1) Realize S-R, D, J-K and T flip-flop using basic gates. (Study the undefined state in S-R flip-flop).
- 2) Study the functional characteristic of IC 74194 with emphasis on timing diagram.
- 3) Design Asynchronous and Synchronous counters. (Mod-8, Mod-10 up counter)
- 4) Study the functional characteristics of RAM IC chip. Study of open collector and tri-state output. Horizontal expansion of RAM chips by cascading. (Use 74189, 7489, or any available chip).

Duration of Examination : 4 hours**Marks Allotment:**

Sessional	-	05 marks
Experiment	-	35 marks
Viva-voce	-	10 marks

Text Books:

1. Digital Electronics Practice using IC by R. P. Jain and M. M. S. Anand, TMH
2. Up to TTL 7400, BPB Publication.

Part-II

PAPER – III(THEORETICAL) : 100 Marks

Group – A : Discrete Mathematical Structures

(75 Periods)

Graphs: Introduction, Finite and Infinite Graphs, Directed and Undirected Graphs, Degree, Isolated vertex, Pendant vertex, Null graphs. (4)

Walks, Paths and Circuits, Connected and Disconnected graphs, Euler's graphs, Hamiltonian paths and circuits, Trees, Introduction and basic properties, Distance and contents, Matrix representation of graphs, Incidence, Adjacency and Circuit matrices, Graph Search – BFS, DFS, Spanning Trees, Shortest Path Problems. (20)

Mathematical Logic: Proposition, Predicates and Quantifiers. Sets, Functions, Growth of Functions, Relation, Equivalence Relation: Big O Notation, Big Omega and Big-Theta Notations. (7)

Algorithms: Complexity of Algorithms, Space and Time, Polynomial and Exponential Algorithms. (6)

Counting theory: Counting, Pigeon Hole Principle, Inclusion and Exclusion Principle, Permutations and Combinations, Recurrence relations and Generating functions. (18)

Introduction to Probability: Sample space, events, probability, simple problems, Conditional Probability, Binomial Distribution (significance only), Random variable, expectation, Variance and Standard Deviations. (20)

Group – B: Numerical Methods and Algorithms

(45 Periods)

[For the methods covered in this group, the algorithm design using pseudo code needs to be done]

Errors: Introduction, types of errors. (2)

Interpolation: Newton Forward and Backward interpolation, Lagrange interpolation. (4)

System of Linear Equations: Properties: linear dependency, Rank, Singularity of Coefficient matrix, Ill-condition matrix, Solution methods: Gaussian Elimination, Gauss-Jordan Elimination, Gauss-Seidel method, convergence and errors. (10)

Solution of Nonlinear Equation: Bisection algorithm, Regula-falsi method, Secant and Newton-Raphson method, convergence and its graphical significances. (10)

Solution of Differential Equations: Euler Method, Modified Euler Method, Taylor Method, Runge-Kutta second and fourth order method for solving differential equations. (10)

Integration: Trapezoidal and Simpson's $1/3^{\text{rd}}$ Rules and its Composite forms. (4)

Curve Fitting: Linear, Quadratic fittings. (5)

Group – C: Formal Languages and Automata Theory

(30 Periods)

Introduction to Formal Languages and Grammar, Chomsky Classification of Grammars, Regular Expressions, Finite Automata - deterministic and non-deterministic and their equivalence, state minimization, introduction to Turing Machines.

Distribution of Questions/marks:

Q1. (Compulsory 10 short questions of 2 marks each). Five more questions to be answered from the remaining taking at least two from Group A, and at least one from each of the other groups. There has to be at least eight questions other than question 1, with four from Group A, and two from each of Group B and C.

(All questions are of 16 marks; questions may have subdivisions.).

Text Books:

1. Graph Theory by N. Deo, PHI
2. Introduction to Graph Theory by D. B. West, Pearson Education
3. Discrete Mathematics and its Applications by Rosen, TMH
4. Discrete Mathematics by C.L.Liu, TMH
5. Numerical Methods for Scientific and Engineering Computation by M.K.Jain, S.R.K.Iyengar, R.K.Jain, New Age International Publishers
6. Computer Oriented Numerical Methods by V. Rajaraman, PHI
7. Introductory Methods of Numerical Analysis by S.S.Sastri, PHI
8. Switching and Finite Automata Theory by Z. Kohavi, TMH
9. Theory of Computer Science(Automata, Languages & Computation) by K. L. P. Misra & N. Chandrasekharan, PHI.

PAPER-IV: 100 Marks

Group-A (Theoretical): 50 Marks

Section – I: Data Structures-II

(30 Periods)

Trees: Introduction, Quantitative Properties, Binary Tree, Tree traversals, Internal and external path lengths: Properties, Minimum and maximum path length of a binary tree, Importance.

Binary Search Trees: Introduction, Searching, Insertion, Deletion. (14)

Searching: Linear and binary search, performance and complexity. (4)

Hashing: Concepts, Advantages and Disadvantages, Different types of hash functions, Collision and Collision Resolution Techniques – Open Addressing with probing, Linear Chaining, Coalesced Chaining, Application. (4)

Sorting: Terminology, Performance Evaluation, Different Sorting Techniques (Bubble, Insertion, Selection, Quick sort, Merge Sort, Heap, Partition Exchange, Radix with iterative and recursive description), Complexity, advantages and disadvantages. (8)

Section-II: Programming through C Language

(40 periods)

(Example programs may be used to explain each of the topics)

Introduction: History, Basic Structure, Algorithms, Structured programming constructs. (2)

C Programming elements: Character sets, Keywords, Constants, Variables, Data Types, Operators- Arithmetic, Relational, Logical and Assignment; Increment and Decrement and Conditional, Operator Precedence and Associations; Expressions, type casting, Comments, Functions, Storage Classes, Bit manipulation, Input and output. (6)

C Preprocessor: File inclusion, Macro substitution. (2)

Statements: Assignment, Control statements- if, if_else, switch, break, continue, goto, Loops-while, do_while, for. (6)

Functions: argument passing, return statement, return values and their types, recursion (4)

Arrays: String handling with arrays, String handling functions. (4)

Pointers: Definition and initialization, Pointer arithmetic, Pointers and arrays, String functions and manipulation, Dynamic storage allocation. (7)

User defined Data types: Enumerated data types, Structures, Structure arrays, Pointers to Functions and Structures, Unions. (4)

File Access: Opening, Closing, I/O operations. (5)

Distribution of Questions/marks:

Q1. (Compulsory 4 short questions of 2 mark each). Three more questions are to be answered from the remaining at least one from Section I and at least one from Section II. There has to be six questions other than question 1, three from section I and three from Section II. (All questions other than question 1 are of 14 marks; questions may have subdivisions).

Text Books :

1. References of Data Structure are given previously.
2. The C Programming Language by B. W. Kernighan, D. M. Ritchie, PHI
3. Programming through C by Richard Johnsonbaugh and Martin Kalin, Pearson Education
4. C Programming Essentials by K. N. Dey, S. Bandopadhyay, Pearson Education
5. A Book on C by Kelley and Pohl, Pearson Education
6. Understanding C by Y. Kanetkar, BPB
7. Programming in Ansi C by E. Balagurusamy, TMH.

Group – B (Software Practical): 50 Marks

Programming through 'C' Language

(Lab Periods 150)

Problems should cover basic features of the Language; Applications including numerical problems, Data Structure, Graph representation and manipulation.

Duration of Examination : 4 hours

Distribution of Marks:

C Program - one question to be answered

Marks Allotment :

Experiment	-	35 marks
(Algorithm/Flowchart	-	5 marks
Source Code	-	25 marks
		Input/Output & Discussion 5 marks)
Sessional	-	05 marks
Viva-voce	-	10 marks

Part – III

PAPER – V (THEORETICAL): 100 Marks

Group – A: Microprocessor

(50 Periods)

Evolution of Microprocessor: Architecture of 8 bit and 16 bit microprocessor Machine Language Instructions, Addressing Modes, Instruction Formats, Instruction Sets, Instruction Cycle, Clock Cycles, Timing Diagrams, Programming a Microprocessor, Interrupts, Interfacing concepts- Memory Interfacing, I/O Interfacing and Ports – PPI 8255 Keyboard Interfacing, Display Interfacing, Interrupt and subroutine handling, Methods of Interrupts, Priority and Management

Case Studies : 8085 and 8086 microprocessor.

Group- B : Computer Organization – II:

(50 Periods)

ALU – Combinational ALU, 2's Complement Addition, Subtraction Unit, Booth's Algorithm for multiplication and division.

Memory Hierarchy: CPU Register, Cache Memory, Primary Memory (DRAM, SRAM, SAM, PAL, PLA), Secondary Memory and Virtual Memory, Associative memory.

CISC and RISC processors: Introduction, relative merits and demerits.

Control Unit: Control Structure and Behaviour, Hardwired Control and Micro programmed control: Basic Concept, Parallelism in Microinstruction.

I/O: Polling, Interrupts and subroutines, Memory mapped I/O and I/O mapped I/O, DMA, I/O Bus and Protocol, SCSI, PCI, USB, Bus Arbitration.

Computer Peripherals: VDU, Keyboard, Mouse, Printer, Scanner etc.

Group- C: Computer Networks

(50 Periods)

Data Communication Concepts: Analog & Digital Signals, Periodic & Non-periodic signals, Time and Frequency Domain; Bandwidth and Data rate; Signal rate, Serial & Parallel transmission, Various modes of transmission: Simplex/ Half Duplex, Duplex, Features of guided and non- guided transmission media, Impairments.

Purpose of Modulation & Encoding: AM, FM, PM ; Multiplexing: Purpose & Definition of FM & TDM. Goals of Computer Network, LAN, MAN and WAN. OSI & TCP/IP Architecture.

Intranet and Internet; Servers and Clients; Ports; Domain Name Server (DNS); Accounts, Internet Service Providers; Connections: Dial Up, ISDN, ADSL; Cable, Modem; E-Mail: Account, Sending, Receiving, Mailing List, IRC, Voice and Video Conferencing, WWW, Browsers.

Distribution of Questions/marks:

Q1. (Compulsory 10 short questions of 2 mark each). Five questions to be answered from the remaining which consists of at least 8 questions. (All questions are of 16 marks; questions may have subdivisions. At least one question to be answered from each group).

Text Books:

1. Computer Architecture and Organizations by J. P. Hayes, TMH.
2. Computer System Architecture by M. Morris Mano.
3. Computer Organization and Architecture by William Stallings, Pearson Education.
4. Introduction to Microprocessor by Gaonkar, Penrum Publishers.
5. Microprocessor and Peripherals by Choudhury et al, Scitech Publishers.
6. Introduction to Microprocessors by A. P. Mathur, TMH.
7. Fundamentals of Microprocessors & Microcomputers by B. Ram, Dhanpat Rai Publications.
8. Data Communications and Networking by Behrouz A. Forouzan, TMH.
9. Data and Computer Communication by William Stallings, Pearson Education.
10. Computer Networks by Tanenbaum, Pearson Education.

PAPER – VI (THEORETICAL): 100 Marks

Group – A: Object Oriented Programming

(30 Periods)

Concepts: Difference with procedure oriented programming; Data Abstraction and Information Hiding : Objects, Classes and Methods, Encapsulation, Inheritance, Polymorphism, Object Oriented Programming through C++: Input/Output, Function and Operator Overloading; Constructors and Destructors, Copy Constructors and Assignment Operator, Overloading, Single and Multiple Inheritance, Polymorphism and Virtual Functions, Namespace, Exception Handling, Templates.

Group – B: Software Engineering

(30 Periods)

Software Life Cycle, Different Models: Waterfall, Spiral; Software Requirement Analysis & Specification, Structured Analysis, DFD, Data Dictionary, Structured Design, Structure Charts, Software Testing : White Box and Black Box Testing, Software Quality Assurance.

Group – C: Computer Graphics

(30 Periods)

Introduction : Co-ordinate System, Information Handling Software, Graphics Software, Area of Application, Translation, Rotation, Scaling, Matrix Representation, Homogeneous Co-ordinate System, Composite Transformation, Inverse Transformation, Computer Art, Animation, Morphing, Projection & Clipping, 2D & 3D Transformations, Lines, Curves and their presentations.

Group – D: Data Base Management System

(60 Periods)

Basic concept, File Management Systems, Advantages of DBMS, ANSI/SPARC Architecture, Physical, Conceptual and External Models, ER Diagram; Data Models : Relational, Hierarchical, Network; File Organization : Sequential, Indexed Sequential, Random, Inverted; Query Languages, Relational Algebra, Relational Calculus, Functional Dependencies, Normal Forms : 1NF, 2NF, 3NF and BCNF; Structured Query Languages (SQL), elementary concepts of Security, Integrity.

Distribution of Questions / marks:

Q1. (Compulsory short questions – 20 marks). Five questions to be answered from the remaining which consists of at least 8 questions. (All questions are of 16 marks; questions may have subdivisions. At least one question to be answered from each group).

Text Books :

1. Object Oriented Programming with C++ by Balagurusamy, TMH
2. Object Oriented Programming with C++ by Robert Lafore, PHI
3. An Integrated Approach to Software Engineering by Pankaj Jalote, Narosa Publishing House
4. Fundamentals of Software Engineering, Rajib Mall, PHI
5. Software Engineering by Pressman
6. Introduction to System Analysis and Design by Igor Hawryszkiewicz, PHI
7. Fundamental of Computer Graphics and Multimedia by D. P. Mukherjee, PHI
8. Computer Graphics by Hearn and Baker, PHI
9. Database System Design by Elmasri, Navathe, Somayajulu, Gupta, Pearson Education
10. Database Systems: Concept, Design and Application by S. K. Singh, Pearson Education, 1st Edition
11. An Introduction to Database Systems by C.J. Date, A.Kannan, S.Swamyathan, Pearson Education
12. Relational Database Design by Jan L. Harrington, An Imprint of Elsevier

PAPER – VII (Practical): 100 Marks

Group – A (Hardware: Microprocessor Programming & I/O Interfacing): 50 Marks

Experiment with 8085A based micro computing kits

- 1) Data movement between register – register, register-memory, memory-memory.
- 2) Arithmetic operations on single byte, word and multi-byte integer, signed and hexadecimal operands.
- 3) Ordered arrangement of a set of operands.
- 4) Bubble Sorting, Sequential and Binary Search.
- 5) Block Replacement and transfer.
- 6) Parity Generator.
- 7) Delay Routines.

Interfacing:

- 1) Display of Alphanumeric Characters on 7 segment displays.
- 2) Matrix Keyboard Interfacing and Identification of the keys.

Duration of Examination : 4 hours

Marks Allotment :

Sessional	-	05 marks
Viva-voce	-	10 marks
Experiment	-	35 marks

Group – B (Software: RDBMS): 50 Marks

RDBMS: ORACLE, SQL Server

Front Ends: Developer 2000, Visual Basic.

Problems: Application Database with GUI.

Duration of Examination : 4 hours

Marks Allotment:

Sessional	-	05 marks
Viva-voce	-	10 marks
Experiment	-	35 marks

PAPER – VIII (Software Practical): 100 Marks

Section I: Object Oriented Programming *Language:* C++, Visual C++ Programming

Problems: Problem set should cover the basic features of the language and implementation of different algorithms covered in theoretical papers.

Section II: UNIX: Files and Directories, Copy, Delete, Rename Directory, Creation, Navigation, Editor, Pipes and Filters, Pattern searching.

Unix Shell Programming.

Platform: SCO UNIX, LINUX

Problems: Problem set should cover the basic features of Unix / Linux and shell programming.

Duration of Examination : 6 hours

Marks Allotment:

Sessional	-	10 marks
Viva-voce	-	20 marks
Experiment	-	70 marks

Section I - 40

Section II - 30

Text Books :

1. SQL / PL / SQL The Programming language of Oracle by Ivan Bayross, BPB.
2. Unix Shell Programming by Y. Kanetkar, BPB.
3. Your UNIX: The Ultimate Guide by Sumitava Das.

Computer Science General

SUMMARY OF PERIOD DISTRIBUTION : Total Marks : 400

Paper (F.M)	Group (F.M)	Type	Minimum Number of Periods	
			Theoretical(T)	Practical(P)
*COURSE WORK FOR PART-I EXAMINATION				
I(100)	*	T	120	
*COURSE WORK FOR PART-II EXAMINATION				
II(100)	*	T	120	
III(100)		P		120
*COURSE WORK FOR PART-III EXAMINATION				
IV(100)	A(50) B(50)	T P	60	72

* Shown within the syllabus; T-Theoretical, P-Practical

F.M: Full Marks

Note: Figures with in() below indicate number of periods allotted for that topic.

Part – I

PAPER I (THEORETICAL) : 100 Marks

Group A: General Concepts

(20 Periods)

Information: Definition, Categories, Data: Storage, Retrieval and Processing.

Compute: Hardware – CPU, Primary & Secondary Storage, Cache Memory, I/O Devices.

Software: Classification System and application; Stored Program Concept and Von-Neumann Architecture;

Evolution: types – supercomputers, mainframes, minis and workstations, PC's, Parallel Machines.

Generations of programming languages: low level language, assembly level language, High Level language, 4GL

Application Software: User specific application development; standard packages.

System Software: Classifications – Operating Systems(OS); Translators – Compilers and Interpreters, Preprocessors, Assemblers, Macro Assemblers, Loaders, Linkers, Line and Screen Editors, other utilities.

Virus: Concept, detection and protection.

Multimedia: Basic concept, associated hardware and software.

Object Oriented Paradigm: Basic characteristics, definition, brief comparison with other types of programming paradigms.

Group B: Digital logic Design

(35 Periods)

Number System, Bits and Byte, Base conversion, (r-1)'s and r's complement, Fixed point, Floating point representation, ASCII, EBCDIC, Boolean Algebra;

Combinational Logic: AND, OR, NAND, NOR, XOR gates; adder, multiplexer, demultiplexer /decoder, encoder. (only conceptual study with block diagram and truth/state table)

Sequential Logic: flip-flops, registers, counters (synchronous & asynchronous) (only conceptual study with block diagram and truth/state table)

Group C: Computer Architecture and Organization

(35 Periods)

Central Processing Unit (CPU)

ALU: Basic Structure of ALU, Addressing Mode, Instruction formats, Handling of interrupts and subroutines.

Control Unit: Instruction and Execution Cycle; Control of sequence, jump and branch instruction; shift instruction.

I/O: Controller, interrupt, DMA, Memory mapped I/O. Standard buses. (brief description of basic characteristics, principle of operation related parameters, and comparative study where applicable)

Memory: Memory devices (brief description of basic characteristics, principle of operation related parameters, and comparative study where applicable), static and dynamic RAM, ROM, cache; secondary memory (floppy disc, hard disc, tape, CD ROM, DVD).

Group D: Operating System

(30 Periods)

Operating System: Definition, types of Operating System, functions of Operating System, SPOOLing, Buffering.

Process: Process concept, Process States, Process control block.

Process scheduling: Scheduling queues, Scheduler, Scheduling criteria, Long term scheduling, Short term scheduling (CPU scheduling - preemptive, non-preemptive), Medium term scheduling.

Context Switch.

Memory Management: Purpose, logical vs physical address space, overlays, swapping, contiguous memory location, memory protection, memory allocation, fragmentation, paging, associative register, segmentation, segmentation with paging, Virtual memory: Concept, demand paging and page fault (definitions only).

Distribution of Questions :

Q1. (Compulsory – 20 marks, any ten questions to be answered out of fifteen, each carrying 02 marks).

No. of questions (Group) : 03(A), 04(B), 04(C), 04(D)

Q2 to Q9. Five questions to be answered taken at least one from each group. Each group contains two questions with 16 marks each.

All questions may have smaller subdivisions.

Text Books:

1. Introduction to Computer Science by P.K.Sinha, P Sinha, BPB Publication.
2. Computer Fundamentals by Anita Goyel, Pearson Education.
3. Computer Architecture and Organizations 2nd Edition, J. P. Hayes, TMH
4. Computer System Architecture by M. Morris Mano, PHI
5. Digital logic and computer design by M. Morris Mano, PHI
6. Digital Principle and Applications by Malvino & Leach, TMH
7. Operating Systems by H.M.Deitel, 2nd Edition, Pearson Education
8. Operating System Concepts, A.Silberschatz, Peter B. Galvin, G. Gagne, 6th Ed., John Wiley & Sons, Inc.

Part - II

PAPER-II (THEORETICAL): 100 Marks

Group A : Algorithms & Data Structure

(45 Periods)

Algorithms and Problem Solving: Algorithm definition and characteristics; algorithm representation technique – flowchart, in words (stepwise), pseudo code, structured constructs – simple structure, selection, repetition, indentation and comments, Recursive and non-recursive algorithms, Complexity, Asymptotic notation (definition, basic properties and use)

Data Structures: Data types and structures – definition. Concepts of sequential and linked allocation.

Linear Structures (concept and implementation): Array, Stack, Queue.

Non-linear structures: Graph, Binary Tree, Binary Search Tree (definition, illustration and basic properties).

Sorting and Searching: Selection sort, insertion sort, bubble sort, linear search, binary search.

Group B: Software Engineering: Models and Introduction to Analysis & Design

(25 Periods)

Introduction, *Software life cycle models:* Waterfall model, Iterative waterfall model, Spiral model, Software Requirement Specifications (SRS), Data Flow Diagram (DFD).

Group C: Database Management System**(50 Periods)**

Overview: File management system and DBMS, DBMS architecture, Data Dictionary, DDL, DML, DBA (Definition and Role of DBA).

Data Models: Network, Hierarchical, Relational models and their comparison

Relational Model: Definition and properties, Keys of different types

Relational Data Design: ER diagram to relational schema, Normalization (upto 3NF)

Query Language: SQL – basic concepts.

Distribution of Questions :

Q1. (Compulsory – 20 marks, any ten questions to be answered out of fifteen, each carrying 02 marks).

No. of questions (Group) : 06(A), 03(B), 06(C)

Q2 to Q9. Five questions to be answered taken two from group A (out of 3 questions), one question from group B (out of 2 questions), and two questions from group C (out of 3 questions).

Each question carries 16 marks.

All questions may have smaller subdivisions.

Text Books:

1. Data Structure by Liptsuitz, S. Outline Series
2. Data Structure by Ellis Horowitz, Sartaz Sahani, Galgotia
3. Data Structure Using C by S. K. Bandyopadhyay and K. N. Dey, Pearson Education
4. Data Structures and Algorithm Analysis in C by Mark Allen Weiss, Pearson Education
5. Introduction to data structure by Trembly & Sorenson, TMH
6. Software Engineering by Pressman
7. Fundamental of Software Engineering by Rajib Mall, PHI.
8. Database System Design by Elmasri, Navathe, Somayajulu, Gupta, Pearson Education
9. Database Systems: Concept, Design and Application by S. K. Singh, Pearson Education
10. Database System Concept by Korth, Silberschatz, Mc GrawHill
11. An Introduction to Database Systems by C.J. Date, A.Kannan, S.Swamynathan, Pearson Education
12. Relational Database Design by Jan L. Harrington, an imprint of Elsevier

Paper-III (Practical) : 100 Marks**Group A: Word processing, Document Preparation & Presentation and Spreadsheet (24 Periods)****Group B: Programming in C****(48 Periods)**

Basic Structure: Character set, keywords, identifiers, constants, variables and type declaration, preprocessor.

Operators: Arithmetic, relational, logical, Assignment, Increment and Decrement, ternary, comma, casting; operator precedence and associativity; type conversion, character I/O, Escape sequence and formatted I/O.

Control Structure: if, if-else, switch case, break, continue.

Loop Structure: for, while, do-while.

Arrays: One-dimensional and two-dimensional, Different types of uses. String handling: concatenation, copy, comparison, string functions.

User defined functions: prototype, needs; argument passing; return value and types, recursion.

Structures: Initialization; arrays of a structure, arrays within structures, nested structure, size of structures.

Pointers: Declaration and initialization; operators; pointer arithmetic, accessing variables, pointer & arrays, strings, dynamic storage allocation.

Group C: Database Design and Applications**(48 Periods)**

The student should be familiar with at least one standard commercial RDBMS software under desktop or multiuser environment. Topic of works should include :

SQL: creation and modification of databases, insert, delete, update operations, creating view, queries, nested queries, aggregate function.

Validation: Correctness, Integrity.

Distribution of Questions :

Group A: One question to be answered out of three	10 marks
Group B: One question to be answered out of five	30 Marks
Group C: One question to be answered out of four	30 marks
Viva: 20 marks	
Sessional: 10 marks	

Duration of Examination – 6 hours

Note : Problems to be assigned to a student by drawing lots in a manner similar to that followed in other practical examinations. The sessional work must be submitted in a word processed version with computer printout of problems, algorithms, listings, output, discussions, graphs, charts, figures, Handwritten output will not be accepted under any circumstances.

Questions will not be package/product specific.

Text Books:

1. Special Edition using Microsoft Office 2003 by Ed Bott & Woody Leonhard, Amazon Publication.
2. Office 2007 all-in-one Desk Reference for Dummies by P. Weverka, Amazon Publication.
3. C programming essentials by K. N. Dey and S. K. Bandyapadhyay, Pearson Education.
4. Programming in C by E Balagurusamy, TMH
5. Let us C by Y. Kanetkar, BPB Publication
6. Teach Yourself SQL & PL/SQL using Oracle 8i & 9i by Ivan Bayross, BPB Publication.

Part III

Paper IV : 100 Marks (Theoretical 50, Practical 50)

Group A (Theoretical) Full Marks : 50

Communication and Computer Networks

(60 Periods)

Communication Concepts: Analog and Digital communication – basic concept and comparison. Signal types frequency spectrum, strength, bandwidth, data rate, channel capacity. S/N ratio, modulation and demodulation FSK, ASK.

Transmission media (brief idea, characteristics, comparison) : Guided (twisted pair, co-axial, optical fiber) and unguided (microwave, satellite-geo synchronous and low-orbit, VSAT).

Audio and Video communication systems : Analog and digital telephone, AM & FM radio, cable TV network, ISDN, paging, cordless and cellular phones, ATM.

Computer Networks : Distributed processing and resource sharing concepts. Classes – LAN, MAN, WAN

Architecture – OSI , TCP/IP and http protocol – brief study. Basic idea of protocols, routing, congestion control.

LAN : Ethernet and Token Ring topology (principle of operation, characteristics, comparison). High speed LANs Internetworking Modems, bridges and routers, connectivity concepts. Network security.

The Internet : basic idea, DNS and URL, IP address, browsers

E-mail : Architecture and services.

Distribution of questions :

Q1. (Compulsory – 10 marks, any five questions to be answered out of eight, each carrying 02 marks)

Q2 to Q9. Any five questions to be answered out of eight, each carrying 08 marks.

Questions may have smaller subdivisions.

Text Books :

1. Data Communications and Networking by Behrouz A. Forouzan, 2nd or 4th Edition, TMH
2. Data and Computer communication by William Stallings, 6th Edition, Pearson Education
3. Computer Networks by Tanenbaum, Pearson Education

Group B (Practical) Full Marks – 50

Group B1 & B2 together constitute Group B.

Group B1: Unix / Linux and Shell Programming

(36 periods)

Files & Directories : Copy, delete, rename, compare files, create, navigate, remove directories, access vi editor, status of users, background jobs; Pipes & filters; cut, paste and sort , pattern searching in a string, Other internal and external commands.

Shell Programming : Concept and simple programming problems.

Group B2 : Programming in Visual Basic

(36 periods)

Students should learn about programming on the following topics using one of the two languages, primarily through practical sessions, along with theoretical classes in between.

Basic Features; building objects with classes, operations with objects, class libraries. Multitasking and multithreading applications; software design involving forms, objects, events, functions, procedure and methods (32 bit programming). ODBC driver; Front and development for database. MFC based multimedia applications.

Distribution of questions:

Group B1: One question to be answered out of four	20 marks
Group B2: One question to be answered out of four	10 marks

Sessional Work – 10 marks, Viva-voce – 10 marks

Duration of Examination – 4 hours

Note : Problems to be assigned to a student by drawing lots in a manner similar to that followed in other practical examinations. The sessional work must be submitted in a word processed version with computer printout of problems, algorithms, listings, output, discussions, graphs, charts, figures, Handwritten output will not be accepted under any circumstances.

Question will not be package/product specific.

Text Books :

1. Your Unix The Ultimate guide by Sumitabha Das, McGraw Hill
2. Unix Shell Programming by Y Kanetkar
3. Microsoft Visual Basic 2008 Step by Step, Michael Halvorson, Microsoft Press
4. Simply Visual Basic 2008, Paul Deitel, H.M Deitel, and G. J. Ayer, Prentice Hall
5. Mastering Microsoft Visual Basic 2008, Evangelos Petroustos, Sybex Publisher
6. Visual Basic 6 by Prasenjit Sinha, S Chand Publication.

UNIVERSITY OF CALCUTTA

SYLLABI

**F
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**THREE-YEAR HONOURS & GENERAL
DEGREE COURSES OF STUDIES**



**ECONOMICS
2010**

University of Calcutta
Syllabus for BA/BSC (Honours and General)
Effective from the Academic Year 2010-11.

Part I

Structure of the BA/BSC (Honours)
 Total Marks = 800

Year	Paper No.	Paper Name	Comments	Marks
1st Year				200
	Paper IA	Microeconomic Principles		50
	Paper IB	Macroeconomic Principles		50
	Paper IIA	Statistics for Economics		50
	Paper IIB	Mathematics for Economics		50
2nd Year				200
	Paper IIIA	Microeconomics		50
	Paper IIIB	Macroeconomics		50
	Paper IVA	Development Theory		50
	Paper IVB	Indian Economy Since Independence		50
3rd Year				400
	Paper VA	International Economics		50
	Paper VB	Public Economics		50
	Paper VIA	Comparative Development Experience		50
	Paper VIB	Contemporary Economic Issues: India and West Bengal	Group A (30 Marks): Contemporary Economic Issues – India. Group B (20 Marks): Contemporary Economic Issues- West Bengal.	50
	Paper VIIA	Statistics & Basic Econometrics		50
	Paper VIIB	Applied Economics	Students have option to answer from either Group A or Group B.	

			<p style="text-align: center;">Group A Applications of Economics to Managerial Issues</p> <p style="text-align: center;">or</p> <p style="text-align: center;">Group B Mathematical Economics</p>	
	PaperVIII A	Indian Economic History		50
	PaperVIII B	Term Paper		50

**Guidelines for Term Paper (Paper VIII B)
of BA/BSc Economics (Honours)**

1. Each student will prepare a term paper not exceeding 5000 words (excluding charts, diagrams, tables etc.).
2. The term paper may be descriptive, exploratory or empirical.
3. The selection of the topic will be from the subjects covered in the undergraduate economics honours syllabus.
4. The term paper will be submitted by the candidates to the respective colleges at least a fortnight before the *viva-voce* examination which will be held at the respective college centres.
5. The board of examiners will consist of one internal and one external examiner.
6. The marks division for the term paper will be as follows: 30 for the written paper and 20 for *viva voce*. The marks of the written paper will be the average given by the internal and external examiners. However, the *viva-voce* will be conducted and the marks awarded by the external examiner only.

Part II

Structure of the BA/BSC General

Year	Paper No.	Paper Name	Comments	Marks
1st Year				100
	Paper IA	Microeconomics I		50
	Paper IB	Macroeconomics I		50
2nd Year				200
	Paper IIA	Microeconomics II		50
	Paper IIB	Macroeconomics II		50
	Paper IIIA	Indian Economy I		50
	Paper IIIB	Indian Economy II		50
3rd Year				100
	Paper IVA	Development Economics		50
	Paper IVB	International Economics & Statistics	Group A (25 Marks): International Economics. Group B (25 Marks): Statistics.	50

Syllabus for BA/BSC (Honours)

Paper IA: Microeconomic Principles		
Full Marks 50: Total Lectures 90		
Unit	Topic	Lectures (No)
1	The Economic Way of Thinking	18
	<p>1.1 Normative Economics and Positive Economics - Methodology</p> <p>1.2 Wants, Scarcity, Competing Ends and Choice - Defining Economics</p> <p>1.3 Basic Economic Questions, Microeconomics and Macroeconomics. Lipsey, Chapter 1 and Chapter 4. Mankiw, chapter 2.</p> <p>1.4 Principles of Microeconomics – principles of individual decision making and principles of economic interactions – Introduce trade Off, Opportunity Cost, Efficiency, Marginal Changes and Cost-Benefit, Trade, Market economy, Market failure, Externality and Market power. Mankiw, Chapter 1, Stockman Chapter 1</p> <p>1.5 Interdependence and the Gains from Trade – production possibilities frontier and increasing costs, absolute and comparative advantage, comparative advantage and gains from trade. Mankiw, Chapter 3, Stockman Chapter 2.</p>	
2	Market and Adjustments	25
	<p>2.1 The Evolution of Market Economies. Price System and the Invisible Hand. Lipsey Chapter 5, (page 59-61).</p> <p>2.2 The Decision-takers – households, firms and central authorities</p> <p>2.3 The Concepts of Markets – individual market, separation of individual markets, interlinking of individual markets. Difference among markets – competitiveness, goods and factor markets, free and controlled markets. Market and non-market sectors, public and private sectors, economies – free market, command and mixed.</p> <p>2.4 Different Goods: Public goods, Private goods, Common resources and Natural Monopolies Lipsey Chapter 6, 67-71, Mankiw Chapter 11 (201-203), Lipsey and Chrystal Chapter 13 (278).</p> <p>2.5 Market and competition; Demand and its determinants; Supply and its determinants; relation of Quantity Demand with Price (using arguments of income and substitution effects); relation of Quantity Supply with Price (using increasing costs argument); Laws of Demand and Supply; Demand and Supply as Planning Curves; movement along and shift of the curve; Demand, Supply and Other factors.</p> <p>2.6 Equilibrium and Disequilibrium</p> <p>2.7 Market Adjustment without Government (with illustrations) Mankiw, Chapter 4. Lipsey and Chrystal, Chapter 3. Stockman Chapter 4</p>	
3.	Market Sensitivity and Elasticity	10
	<p>3.1 Importance of Elasticity in Choice-Decisions</p> <p>3.2 Method of Calculation – Arc Elasticity. Point Elasticity – definition.</p> <p>3.3 Demand and Supply Elasticities – types of elasticity and factors effecting elasticity.</p> <p>3.4 Demand Elasticity and Revenue</p>	

	<p>3.5 Income and Cross Price elasticity 3.6 Long run and Short Run elasticities of Demand and Supply 3.7 Case Studies – OPEC and Oil Price, Illegal Drugs Mankiw, Chapter 5. Stockman, Chapter 5. Lipsey and Chrystal, Chapter 4.</p>	
4	Government Intervention	10
	<p>4.1 The Economic Role of Government with respect to Market:(i) Price Ceiling, Price Floor and Market Adjustment (with short case studies of agricultural administered price, minimum wage and rent control); (ii) Black Market (iii) Tax and market adjustment; (iv) Elasticity and Tax incidence. Mankiw, Chapter 6. Lipsey, Chapter 10 (115-16). Stockman, chapter 8.</p>	
5	Utilitarian Approach	4
	<p>The History of Utility Theory – From Cardinal to Ordinal Approach. Samuelson and Nordhaus, Chapter 6 (85-86). 5.2 Utility in Cardinal Approach – Utility and choice, Total Utility and Marginal utility, Utility and choice - maximization, marginal utility theory of demand. Lipsey and Chrystal, Chapter 5 (87-90)</p>	
6	Markets and Welfare	10
	<p>6.1 Willingness to Pay and Consumer Surplus 6.2 Willingness to Sell and Producer Surplus 6.3 Market Efficiency and Deadweight Loss 6.4 Deadweight Loss of Taxation. Mankiw, Chapters 7 and 8 (152-157). Stockman, Chapter 9</p>	
7	Market failure, Externalities and Public Goods	12
	<p>7.1 Market Failure (definition) and its causes. Lipsey and Chrystal Chapter 13 (277-278). 7.1 Externalities and market inefficiency: difference between social costs and private costs, Positive and negative externalities, Private Solution to Externalities: Coase theorem, Public Policy towards Externalities: Regulation, Pigovian tax and subsidies, tradable permits. Mankiw Chapter 10, Stockman Chapter 21. 7.2 Public Goods and Common Resources: Public Good and the free rider problem. Common Resources and Tragedy of Commons. Examples of Public Goods and Common Resources. Mankiw Chapter 11 (203-211).</p>	
8	Conflicting and Complementary Roles of Market and Government (Summary)	1
	<p>Readings Texts 1. R.G. Lipsey. An Introduction to Positive Economics. English Language Book Society. (sixth edition or later edition) 2. Lipsey and Chrystal. 2007. Economics. Oxford University Press. 3. G, Mankiw. 2007. Economics: Principles and Applications. South Western of Cengage Learning. 4. A, Stockman. 1999. Introduction to Economics. Dryden Press. (2nd or later edition). References 5. Edwin G Dolan & David E Lindsey. 1994. Microeconomics. The Dryden Press.</p>	

<p>6. J E Stiglitz and C E Walsh. Principles of Economics, W.W. Norton & Company, New York (3rd or later Edition)</p> <p>7. P Samuelson and W Nordhaus. Economics, Mc GrawHill International Editions. (14th edition or latest one)</p> <p>8. R. L. Heilbroner. The Worldly Philosophers: The Lives, Times and Ideas of the Great Economic Thinkers. Touchstone: New York. 6th or latest edition. (for students interested in knowing the historical evolution of economy, the lives and contributions of great economists).</p>	
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Paper IB: Macroeconomic Principles		
Full Marks 50: Total Lectures 90		
Unit	Topic	Lectures (No)
1	Nature and Scope of Macroeconomics	12
	1.1 Distinction between Macro economics and Microeconomics - Aggregation and Macroeconomics 1.2 Goals and Instruments of Macroeconomics 1.3 Supply and Demand in Macroeconomics Introduce Economic growth, GNP gap, booms, recessions, depressions, business cycles, fiscal policy, monetary policy, international economic policy, macro equilibrium, exchange rate, inflation and deflation, stagflation, supply shock and tight money. 1.4 Brief history and Schools of Macroeconomics – Keynesian, Classical, New Keynesian and New Classical. Samuelson and Nordhaus, Chapter 23. S, Sikdar Introduction (page 6-8).	I
2	Accounting Output and Income	20
	2.1 The Circular Flow Explication - Measuring Output – Gross National Product - Nominal GNP, Real GNP and GNP Deflator. 2.2 The Two Approaches to measure GNP - The Final Goods Approach and Income Approach. 2.3 Intermediate goods and value added approach 2.4 Flow Statistics and Stock Statistics –Investment –Consumption –Capital stock 2.4 GNP, Gross Domestic product, Net National product, National Income and Disposable Income. 2.5 GNP and Economic Well Being Samuelson and Nordhaus, Chapter 24, Mankiw, Chapter 23.	
3	Consumption and Investment	14
	Consumption and Savings – Consumption, Income and Saving, Consumption Function, Marginal Propensity to Consume, Marginal Propensity to Save. Determinants of Consumption. Determinants of Investment. Investment Demand Curve and interest rate. Samuelson and Nordhaus, Chapter 25	
4	Production and Growth	10
	4.1 History of Economic Growth and Why Growth Matters. 4.2 Importance of productivity in growth. Determinants of productivity –	

	<p>physical capital, human capital, natural resources and technological knowledge.</p> <p>4.3 Economic Growth and Public Policy – importance of saving and investment, diminishing returns and catch-up effect, foreign investment, education, property rights and political stability, free trade, population control and research and development (brief illustration in the context of Indian economic reform)</p> <p>Mankiw, Chapter 25.</p>	
5	Unemployment	12
	<p>5.1 Defining and Measuring the Unemployment Rate – Counting of Unemployed – Employed, Unemployed, Labour Force, Discouraged Workers. Okun’s Law. Economic Costs of High Unemployment.</p> <p>5.2 Types of Unemployment – Frictional Unemployment and Job Search, Structural Unemployment and Cyclical Unemployment, Voluntary versus Involuntary Unemployment.</p> <p>5.3 Sources of Inflexibility in wages – minimum wages, unions and collective bargaining and efficiency wages.</p> <p>Samuelson and Nordhaus, Chapter 31 (572-81), Mankiw, Chapter 28</p>	
6	Money and Monetary Institutions	12
	<p>6.1 The Classical and Modern View</p> <p>6.2 Definition and functions of Money.</p> <p>6.3 Origins of Money including Gresham’s Law.</p> <p>6.4. Money Creation, Models of Banking – ratios approach and competitive banking system, money supply and competitive banking.</p> <p>6.5 Money and Relative Values – money as a veil, neutrality of money, money illusion, real and monetary effects and price level changes.</p> <p>Lipsey and Chrystal, Chapters 20 and 21 (462-464).</p> <p>6.6 Reserve Bank of India, Targets and instruments of monetary policy.</p> <p>Sikdar. Chapter 6 (79, 82-84), Samuelson and Nordhaus Chapter 29 (529-532).</p>	
7	Inflation	10
	<p>7.1. Definition and measurement of Inflation rate – CPI and GNP Deflator.</p> <p>7.2 Index-number problems in measuring the cost of living.</p> <p>7.3. Types of Inflation – Moderate inflation, Galloping Inflation and hyperinflation.</p> <p>7.4 Impact of Inflation – redistribution of Income and Wealth and distortions on output and prices.</p> <p>7.5 Correcting economic variables from inflationary effects.</p> <p>Samuelson and Nordhaus, Chapter 32. G, Mankiw, Chapter 24.</p>	
<p>Readings</p> <p>Texts</p> <ol style="list-style-type: none"> 1. P Samuelson and W Nordhaus. Economics, Mc GrawHill International Editions . (14th edition or latest one) 2. G, Mankiw. 2007. Economics: Principles and Applications. South Western of Cengage Learning. 3. Lipsey and Chrystal. Economics. Oxford University Press. (eleventh edition or latest one). <p>References</p> <ol style="list-style-type: none"> 4. S, Sikdar. Principles of Macroeconomics. Oxford University Press. 		

5. R.E. Hall and D.H. Papell. Macroeconomics. WWW Norton. (6th edition or latest one).
 6. J E Stiglitz and C E Walsh. Principles of Economics, W.W. Norton & Company, New York (3rd or later Edition).

Paper II A: Statistics for Economics		
Full Marks 50: Total Lectures 90		
Unit	Topic	Lectures (no)
1	Data Presentation	5
	Data - Classification and presentation, Population and Sample, Collection of Data - Variable and Attribute. Frequency distribution - Diagrammatic representation of frequency distribution. Goon,Gupta,Dasgupta – Fundamentals of Statistics, Vol I	
2	Central Tendency	15
	2.1 Arithmetic Mean, Median and Mode (for both grouped and ungrouped data), Comparison of Mean, Median and Mode, Geometric and Harmonic Mean, Composite Mean. 2.2 <i>Application</i> : Index Numbers: their concept as weighted averages, Problems in the Construction of Index Numbers, Chain Index, Cost of Living Index Number (different formulae) 2.3 Wholesale Price Index and Cost of Living Index in India, Uses of Index Numbers. Goon,Gupta,Dasgupta – Fundamentals of Statistics, Vol I	
3	Dispersion	6
	3.1 Range, Mean Deviation Quartile Deviation and Standard Deviation, Measures of Relative Dispersion, Curve of Concentration. 3.2 Measurement of Economic Inequality: Gini Coefficient and Lorenz Curve. Goon,Gupta,Dasgupta – Fundamentals of Statistics, Vol I	
4	Skewness and Kurtosis	3
	4.1 Central and non central moments, different measures of skewness and kurtosis Goon,Gupta,Dasgupta – Fundamentals of Statistics, Vol I	
5	Probability Theory	15
	5.1 Elements of Probability Theory - Sample Space, Events Meaning of Probability, Classical Definition of Probability 5.2 The Addition Rule, The Multiplication Rule, Theorems of Total Probability, Conditional Probability and Statistical Independence 5.3 Limitations of the Classical definition, Frequency definition, Axiomatic Approach, Bayes' Rule	

	Mathai & Rathie – Probability and Statistics Goon,Gupta,Dasgupta – Fundamentals of Statistics, Vol I	
6	Random Variables and Probability Distributions	
	6.1 Definition of random variable – discrete and continuous random variable, probability mass function and probability density functions, Expectation and Variance of random variables 6.2 Univariate Probability Distributions: Binomial, Poisson, Hypergeometric, Normal and Standard Normal Distribution -Mean Variance, Skewness and Kurtosis.	6 15
	6.3 Moment Generating Functions, Limiting form of Binomial distribution (with proof), Limiting form of Poisson distribution (no proof), Importance of Normal Distribution in Statistics, Central Limit Theorem (statement only). Mathai & Rathie – Probability and Statistics Goon,Gupta,Dasgupta – Fundamentals of Statistics, Vol I	10
7	Bivariate Analysis	10
	7.1 Definition of bivariate data, scatter diagram, covariance - measure of association - Coefficient of Simple Correlation - Properties and the method of calculation. 7.2 Concept of rank correlation -Spearman's Rank Correlation 7.3.Measure of influence - Simple Linear Regression - Least Squares and Normal Equations and determination of regression coefficient Goon,Gupta,Dasgupta – Fundamentals of Statistics, Vol I	
8	Population Statistics	5
	8.1 Measurements of mortality: Crude Death Rate, Specific death Rate, Standardised death rate, Mortality index, Infant mortality rate. 8.2 Measurements of fertility: Crude birth rate, general fertility rate, age-specific fertility rate, total fertility rate, Gross Reproduction Rate, Net Reproduction Rate. 8.3 Life Table: its uses. Goon,Gupta,Dasgupta – Basic Statistics.	
	Readings	
	Texts 1. Goon, Gupta, Dasgupta – Fundamentals of Statistics, Vol I, World Press Private limited 2. Mathai & Rathie – Probability and Statistics, The Macmillan company of India Limited References 3. Earl.K. Bowen and Martin K. Starr. Basic Statistics for Business and Economics. McGraw Hill International Student Edition	

<p>4. Kenney and Keeping. Mathematics of Statistics, Vol.1 (Chapters, 1, 2 and 5). Affiliated East West Press.</p> <p>5. Allen Webster. Applied Statistics for Business and Economics, 3rd Edition. McGraw Hill International Edition.</p> <p>6. P H Karnel and M Polasek. Applied Statistics for Economists, 4th Edition. Pitman: Australia</p> <p>7. M R Spiegel and L.J. Stephen. Statistics, Schaum Series</p>
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Paper IIB: Mathematics for Economics		
Full Marks 50: Total Lectures 120		
Unit	Topic	Lectures (No)
1	Introduction to Functions and Graphs	12
	The concept of sets and their operations Cartesian product, vocabulary of functions, graphs, polynomials, increasing and decreasing functions Local, global maximum, linear and non-linear functions and their slopes Differentiability and continuity of a function Ref: Chiang & Wainwright , Chapter 2 , Archibald & Lipsey, Chapter 2&3	
2	Derivatives and its uses in single-variable calculus	15
	2.1 Use of first derivatives for graphing, second derivatives and curvature 2.2 Maxima and minima (local and global) 2.3 Concepts of average and marginal change, and elasticity Ref: Archibald & Lipsey, Chapter 4&6	
3	Functions of several variables:	15
	3.1 Level curves 3.2 Partial derivatives, second order derivatives and use of chain rule, convexity of level curves 3.3 Monotonic transformation, homogeneous function, Euler's theorem Ref: Archibald & Lipsey, Chapter 8	
4	Linear Algebra, Fundamentals of Matrix Algebra and Linear Programming:	18
	4.1 System of linear equations and its solutions, Cramer's rule 4.2 Comparative Static exercise, matrix operations of linear equation systems, system with multiple or no solutions 4.3 Input-Output Matrices 4.4 Formulation of a linear programming problem, concepts of feasible and basic feasible solution, duality Ref: Chiang & Wainwright: Chapter 4&5, Archibald & Lipsey,Chapter 15	
5	Optimisation with Equality and Inequality Constraints	18
	5.1 Constrained and unconstrained optimization with first-order and second-order conditions 5.2 Homogeneous and homothetic functions, concave and quasi-concave functions and their programming Ref: Chiang & Wainwright, Chapter 12,13 (Section 13.1) Archibald & Lipsey, Chapter 10	
6	Difference Equations:	12
	6.1 Linear first-order difference equation and their solution	

	6.2 Linear second-order difference equation and their solution Ref: Chiang & Wainwright, Chapter 16	
7	Differential Equations:	15
	7.1 Linear first-order differential equation 7.2 Linear second order differential equation with real equal and unequal roots and complex roots Ref: Chiang & Wainwright, Chapter 17, 18 (Section 18.1)	
8	Game theory:	15
	8.1 Concepts of Game, representation, pure strategy and mixed strategy solutions 8.2 Two person Zero sum game as a linear programming problem, Constant & Non-constant sum game 8.3 Prisoner's Dilemma, Dominance, Pure Strategy, Nash Equilibrium Ref: Baumol, Chapter 18	
	Readings List	
	<p>Texts Archibald, G.C & Lipsey, R (1990) (Third Edition) An Introduction to a Mathematical Treatment of Economics, New, Delhi, All India Traveller Bookseller, Indian Reprint Baumol, W.J (2009) (Fourth Edition): Economic Theory and Operations Analysis, Prentice Hall, Chapters 2,3,5,7,8,18 Chiang, A. C. & Wainwright (2005) (Fourth Edition): Fundamental Methods of Mathematical Economics, McGraw-Hill. Schaum's Easy Outline of Introduction to Mathematical Economics (2005)</p> <p>References Aliprantis, D C. and S. K. Chakrabarti (1999) Games and Decision Making, Oxford University Press. Renshaw, G (2009) Second Edition): Maths for Economics, Oxford University Press. Sydsaeter, K & Hammond, P.J (1995): Mathematics for Economic Analysis, Pearson edition</p>	

	Paper IIIA: Microeconomics	
	Full Marks 50: Total Lectures 90	
Unit	Topic	Lectures (No)
1	Consumer Theory	25
	<p>1.1 Assumptions on preference ordering, indifference curve, marginal rate of substitution and convexity of IC, budget constraint, consumers' equilibrium – interior and corner, Derivation of Demand Curves from ICs, composite good convention. Application: Cash subsidy versus subsidy in kind.</p> <p>1.2 Income and price consumption curves Price effect - substitution effect (Hicks and Slutsky), inferior goods and Giffen goods, income effect, ordinary and compensated demand curves. Maddala and Miller, Chapters 4 and 5.</p> <p>1.3 Inter-temporal choice (saving and borrowing). Maddala and Miller, Chapter 5 (page 142-145)</p>	

	<p>1.4 Revealed preference. Pindyck and Rubinfeld, Chapter 3 (section: 3.4)</p> <p>1.5 Choice under uncertainty- utility function and expected utility, risk aversion and risk preference (concepts only)</p>	
2	Production and Costs	15
	<p>2.1 Technology, Production Functions and Isoquants, short run and long run, production with one and two variable inputs, total average and marginal products, law of diminishing return, marginal rate of technical substitution, elasticity of substitution, economics of scale. Pindyck and Rubinfeld, Chapter 6</p> <p>2.2 Types of production functions- Cobb-Douglas, fixed-coefficient and CES functions.</p> <p>2.3 Cost structure-implicit cost, explicit cost, accounting cost, sunk cost, economic cost, fixed cost, variable cost, total, average and marginal cost. Determinants of Short run cost, Cost Curves, cost minimization and expansion path, Short run versus long run cost curves, economies of scope. Pindyck and Rubinfeld, chapter 7.</p>	
3	Market Structure	30
	<p>3.1 Organization, Firms and Profit Maximization.</p> <p>3.2 Marginal Revenue, Marginal Cost and Profit Maximization.</p> <p>3.3 Perfect competition- short run competitive equilibrium of the firm, short run supply curve of firm and industry, Output choice and competitive equilibrium in long run, Economic rent and profit, long-run industry supply – constant, increasing and decreasing cost. Lipsey and Chrystal Chapter 6 (114-116), Pindyck and Rubinfeld, Chapter 8</p> <p>3.4 Efficiency of competitive equilibrium, Government intervention and dead weight loss, Application – Minimum prices and price supports. Pindyck and Rubinfeld, Chapter 9 (283-285, 288-290, 292-294).</p> <p>3.2 Monopoly and barriers to entry – output determination and price rule, measure and sources of monopoly power, social costs of monopoly power – deadweight loss. Pindyck and Rubinfeld, Chapter 10 (319-344).</p> <p>3.3 Pricing with market power – first, second and third degree price discrimination. Pindyck and Rubinfeld, Chapter 11 (361-375)</p> <p>3.4 Monopolistic competition – short run and long run equilibrium, excess capacity. Pindyck and Rubinfeld, Chapter 12 (414-419)</p> <p>3.5 Oligopoly – Oligopoly equilibrium as Nash equilibrium, Cournot and Stackelberg Model, Competition versus collusion – the Prisoners’ Dilemma. Pindyck and Rubinfeld, Chapter 12 (419-437)</p>	
4	Input Markets	10
	<p>4.1 Basic concepts-derived demand, productivity of an input, marginal product of an input, marginal revenue product.</p> <p>4.2 Marginal productivity theory of distribution.</p> <p>4.3 Labor market-supply of labor, competitive labor markets, monopsony, collective bargaining.</p> <p>4.4 Land markets and rent. Pindyck and Rubinfeld, Chapter 14. Lipsey and Chrystal, Chapter 10</p>	

5	Other issues related to Market	10
	<p>5.1 General Equilibrium and Economic Efficiency - Exchange, production and welfare.</p> <p>5.2 Reasons for Market Failure Pindyck and Rubinfeld, Chapter 16</p> <p>5.3 Markets with asymmetric information- adverse selection, moral hazards, agency problems (concepts only). Lipsey and Chrystal, Chapter 11 (241-243).</p>	
	Readings	
	<p>Texts</p> <p>1. R S. Pindyck and D.L. Rubinfeld, (2000), Microeconomics, 3rd edition, Prentice Hall, India.</p> <p>2. G.S. Maddala and E. Miller. 1989. Microeconomics. McGraw-Hill International Editions. (or later edition)</p> <p>References</p> <p>3. Lipsey and Chrystal. 2007. Economics. Oxford University Press.</p> <p>4. R S. Pindyck, D.L. Rubinfeld and Mehta (2007). Microeconomics, 7th edition, Prentice Hall, India.</p> <p>5. H R. Varian. Intermediate Microeconomics, a Modern Approach. Affiliated East-West Press.</p> <p>6. Satya Chakrabarty. Microeconomics. Allied Publishers.</p> <p>7. B.D. Bernheim and M.D. Whinston. Microeconomics. McGraw-Hill International Editions.</p> <p>8. H. Gravelle and R Rees. Microeconomics. Addison Wesley Longman Limited.</p> <p>9. Anindya Sen. Microeconomics, Oxford University Press.</p> <p>10. Ferguson and Gould. Microeconomic Theory. All India Traveler Book Sellers. (sixth edition).</p>	

Paper IIIB: Macroeconomics		
Full Marks 50: Total Lectures 80		
Unit	Topic	Lectures (No)
1	The Economy in the Long Run	15
	<p>1.1 The classical analysis of the real sector-determination of employment, income and interest rate. Mankiw Chapter 3.</p> <p>1.2 Job Loss, Job finding and Natural Rate of Unemployment. Mankiw Chapter 6 (page 132-35). Hall and Papell Chapter 3 (61-72)</p> <p>1.3 Money and Inflation - quantity theory of money, seigniorage and inflation tax, inflation and interest rates, nominal interest rate and demand for money. Mankiw Chapter 7 (161-175).</p>	
2	The Economy in the Short Run	25
	<p>2.1 Simple Keynesian analysis of aggregate demand without and with the government sector, multiplier. Mankiw Chapter 10 (256-265). Hall and Papell Chapter 7 (168-180).</p> <p>2.2 IS-LM, fiscal and monetary policy. Mankiw Chapter 10 (266- 279), Chapter 11 (282-291); Hall and Papell Chapter 8 (189-209)</p>	

	<p>2.3 IS-LM and Aggregate Demand Mankiw Chapter 11 (291-294); Hall and Papell Chapter 8 (209-215)</p> <p>2.4 Aggregate supply – Sticky Wage Model and Imperfect Information Model, Aggregate Supply and Phillips curve, Inflation and Unemployment trade off without and with rational expectations. G, Mankiw Chapter 13 (350-353, 357-358, 364-373)</p> <p>2.5 Economy wide equilibrium with fiscal and monetary policy, demand and supply shocks, wage price flexibility and rigidity (only definition), Keynesian aggregate supply and Classical Aggregate Supply. S, Sikdar Chapter 8 (120-126).</p>	
3	Foreign Trade and Exchange Rate	10
	<p>3.1 Economic Openness with an emphasis on Indian economy, balance of payments, BOP and the Central Bank, Financing Current Account Deficit.</p> <p>3.2 Exchange Rate Concepts, Determination of Exchange Rate – fixed and flexible, Importance of Foreign Currency Reserves with reference to India, Domestic Adjustment, BOP Crisis and Speculative Attack, Internal and External Balance under Fixed Rate, Advantages of Flexible exchange and Fixed Rates.</p> <p>3.3 Foreign exchange market reform in India, relation of Devaluation with purchasing power parity and inflation, purchasing power parity principle.</p> <p>3.4 IS-LM model without capital flows, Open economy with capital flows – the Mundell-Fleming Model. S, Sikdar Chapter 7.</p>	
4	Theories of Consumption and Investment	15
	<p>4.1 Consumption - Keynes and consumption function, inter-temporal choice, life cycle and permanent income hypothesis.</p> <p>4.2 Investment—business fixed investment, neo-classical approach, Tobin's q, Residential investment and accelerator model of inventories. G, Mankiw Chapters 16 and 17.</p>	
5	Demand for Money	5
	<p>5.1 Demand for money: Portfolio theory of money demand, Baumol-Tobin analysis of cash management. G, Mankiw Chapter 18.</p>	
6	Economic Growth	10
	<p>6.1 Solow model, Golden Rule of capital, impact of changes in saving propensity, population growth and technological progress. Growth accounting and Solow residual. G, Mankiw Chapter 4 and Chapter 5 (105-108, 125-130)</p> <p>6.2 Endogenous Growth Theory (introduction). G, Mankiw Chapter 5 (118-119)</p>	

Readings**Texts**

1. N. Gregory Mankiw, (2000), Macro-Economics, 4th Edition or latest, Macmillan.
2. Soumen Sikdar. Principles of Macroeconomics. Oxford University Press.

References

3. R.E. Hall and D.H. Papell. Macroeconomics. WWW Norton. (6th edition).
4. Rudiger Dornbusch, Stanley Fischer and Richard Startz, Macroeconomics, 7th (or later) edition, McGraw Hill.
5. Richard Froyen. Macroeconomics. Pearson Education. (9th edition or latest).

Paper IVA: Development Theory		
Full Marks 50 : Total Lectures 80		
Unit	Topic	Number of Lectures
1	Concepts and measures of development	8
	1.1 Nature, Questions and Values of Development, Meanings of development – economic growth, redistribution from growth and capabilities approach to development, Objectives of development. Todaro and Smith Chapter 1. 1.2 Measures of development – Purchasing power parity and Per capita income as an index of development, difference between growth and development, human development index. Thirlwall Chapter 2 (page 30-36, 47). Meier and Rausch Chapter 1 (5-14) 1.3 Definition of developing economy. Todaro and Smith Chapter 2 (68-71). 1.4 Characteristics of a developing economy. Todaro and Smith Chapter 2 (80-91). Thirlwall, Chapter 3 (65-77, 80-84).	
2	Process of Development – theoretical perspectives	10
	2.1 Theories of transition – Clark and Fisher on change in sectoral share; Rostow’s stages of growth; Kuznets’s characteristics of Growth; Industrialisation, Growth and Kaldor’s growth laws; The neo-classical approach of market and growth. Todaro and Smith Chapter 3 (119-125, 158-159, 162-165). Thirlwall, Chapter 3 (105-120)	
3	Factors in economic development	10

	<p>3.1 Land: Ownership and tenancy system – fixed rent contract and share cropping, role of agriculture in development, barriers to agricultural development and land reforms. Thirlwall Chapter 5 (167-178). Debraj Ray Chapter 12 (415-420, 457-458)</p> <p>3.2 Labour – Population and Labor force growth, casual and long term labor, permanent labor market. Todaro and Smith 3 (114-116). Debraj Ray 13 (484-86, 504-506).</p> <p>3.3 Capital: Role of capital accumulation in economic development. Significance of capital-output ratio, role of technology and technological progress, learning, human capital. Todaro and Smith 3 (113-114). Thirlwall Chapter 6 (210-226)</p>	
4	Population and Development	4
	<p>4.1 Concepts of Population: definitions of fertility, mortality, birthrates, death rates, fertility rate, life expectancy, infant mortality rate, youth dependency ratio.</p> <p>4.2 Theory of demographic transition Todaro and Smith Chapter 7 (293-308).</p>	
4	Development strategies	14
	<p>4.1 Complementarity and Coordination Todaro and Smith Chapter 5 (184-187). Debraj Ray Chapter 5 (131-136).</p> <p>4.2 Poverty Trap of Nurkse and Big Push theory of Rosenstein-Rodan</p> <p>4.3 Linkages – backward and forward; linkages, policy and big push. Debraj Ray, Chapter 5 (136-143). Todaro and Smith Chapter 5 (184-193)</p> <p>4.4 Choice of technology and choice of scale (large vs small) and criteria for investment. Thirlwall Chapter 12</p> <p>4.5 Gains from Trade – static, dynamic and vent for surplus, tariffs versus subsidies. Prebisch doctrine, Prebisch-Singer thesis and Terms of Trade. Thirlwall 16. Todaro and Smith Chapters 12.</p>	
5	Development in a Labour surplus economy	14
	<p>5.1 The concept of economic dualism. Kausik Basu Chapter 7 (151-153). Thirlwall Chapter 7 (234-236)</p> <p>5.2 Lewis' model of economic development with unlimited supply of labour, Disguised Unemployment: Types and Measurement. Todaro and Smith Chapter 4 (150-155). Thirlwall Chapter (198-206). The Informal Sector. Todaro and Smith Chapter 8 (358-366).</p> <p>5.4 Rural-urban migration of labour – Harris-Todaro model Todaro and Smith Chapter 8 (368-381).</p>	
6	Development, Inequality and poverty	14

	<p>6.1 Meaning of inequality, inequality measures, Lorenz Curve, Range, Coefficient of variation, Gini-coefficient, Kuznet's Inverted U hypothesis.</p> <p>6.2 Poverty, relative and absolute deprivation with respect to income, Poverty line, Poverty measures – Head count ratio, Poverty gap ratio, Income gap ratio, Human Poverty Index.</p> <p>6.4 Social dimensions of poverty – rural poverty, women and ethnic minorities and indigenous populations. Todaro and Smith Chapter 6. Debraj Ray Chapters 6, 7 (199-200), 8 (249-256). Thirlwall Chapter 2 (47-54).</p> <p>6.5 Tackling Poverty – The World Bank Approach Thirlwall Chapter 2 (41-44).</p>	
7	Environment and development	6
	<p>7.1 Development and Environmental – an overview. Meier and Rauch Chapter 10 (588-89)</p> <p>7.2 Basic Issues of development and environment - Sustainable development and environment accounting, population and resources, poverty, rural development, urban development, global environment - rain forest destruction and greenhouse gases. Todaro and Smith Chapter 11 (497-507)</p> <p>7.3 Policies for Environmental Regulation. Lipsey and Chrystal, Chapter 13 (286-89).</p>	
	<p>Readings</p> <p>Texts</p> <p>1. A.P. Thirlwall. Growth and Development. Palgrave MacMillan. (8th edition or latest)</p> <p>2. M.P. Todaro and S.C. Smith, "Economic Development". Pearson Education.</p> <p>3. Debraj Ray. Development Economics. Oxford University Press.</p> <p>References</p> <p>4. Lipsey and Chrystal. 2007. Economics. Oxford University Press.</p> <p>5. K. Basu. Analytical Development Economics: The Less Developed Economy Revisited. Oxford University Press.</p> <p>6. G.M. Meier and J.E. Rauch. Leading Issues in Economic Development. Oxford University Press. (8th edition or latest)</p> <p>7. Y. Hayami, "Development Economics", (Oxford University Press)</p> <p>8. S. Fukuda-Parr and A.K. Shiva Kumar. Readings in Human Development. Oxford University Press.</p>	

	Paper IVB: Indian Economy Since Independence	
	Full Marks 50: Total Lectures 80	
Unit	Topic	Lectures (No)
1.	Indian Economy at the time of Independence	2
	Features of Indian Economy around 1947-1950 and characteristics of economic underdevelopment of India (with reference to colonial rule of India)	

	Bipan Chandra in Jalan (ed). Uma Kapila, Chapter 1.	
2.	Planning: Evolution of India's Development Goal and Strategy	30
	The background and Structure of Indian Planning. Uma Kapila, Chapters 1 and 2. Chakravarty, Chapter 1.	
	Structural Constraints and India's development strategy – Choice of industrialization strategies – public vs. private sector, capital goods versus consumer goods – Mahalanobis Plan Model (basic argument), import substitution vs. export promotion strategy. Uma Kapila, Chapter 3. Chakravarty Chapters 2 and 5 (page 69-75).	
	Agriculture-industry relationship – demand side and supply side linkages– agriculture-industry terms of trade - food crisis of the 1960s and imperatives for agricultural growth, genesis of green revolution – fourth plan (basic argument). Chakravarty Chapter 3 and 5 (59-64); Uma Kapila Chapter 11.	
	2.4 Poverty Eradication, foreign aid and self-reliance – Fifth Five Year Plan Model (basic argument) Chakravarty, Chapter 3. Wadhwa Chapters 5 and 7,	
	Regional inequality in India – causes; policies for balanced regional development. Chakravarty Chapter 4 (45-52).	
	Planning deficiencies and its abandonment– 7 th five year plan and Indian economic crisis. Chakravarty Chapter 4 (39-44). Bardhan in Jalan (ed).	
	New Economic Policy – liberalisation, market and state (introduction) Rangarajan in Uma Kapila, Chapter 5. Uma Kapila, Chapter 20. Bardhan in Jalan (ed).	
3	Land and Agriculture	20
	2.1 Land and tenancy system- sharecropping- Different dimensions of Land Reform – Productivity Debate – Marketable Surplus. S.K. Ray in Uma Kapila, Chapter 12. Wadhwa Chapters 19, 20, 21, 22, 23 and 31.	
	2.2 Green Revolution – features of green revolution – positive and negative impacts of green revolution. Performance of Indian agriculture. Vaidyanathan. 1994. Chakravarty Chapter 3 (24-27). Wadhwa Chapters 29 and 30.	
	2.3 Agricultural Policies and Pricing – Agricultural Price commission – support price vs. procurement price – Public investment in agriculture - agricultural subsidies and tax. Hanumantha Rao in Jalan (ed). Uma Kapila Chapter 11. Wadhwa Chapters 24, 25, 26 and 27.	
4	Industrial Development: Evolution, Trade and Policy	18
	4.1. Structure and composition of Industry – issues of concentration, large vs small industry – industrial location. Small scale reservation policy. Trends and patterns of industrial growth. Uma Kapila, Chapter 18. Rakesh Mohan in Jalan (ed).	
	4.2 Foreign trade regime, protection and foreign competition, Productivity; import substitution versus export Competitiveness, effect on export competitiveness. Uma Kapila, Chapter 18. T.N. Srinivasan in Uma Kapila, Chapter 25. Rangarajan in Uma Kapila, Chapter 26.	

	4.3 Industrial Policies – Industrial licensing system. Uma Kapila, Chapter 18. Rakesh Mohan in Jalan (ed). Wadhwa Chapter 16.	
5.	Employment, Wages and Inflation	10
	5.1 The trends and pattern of employment and wages in India – informalisation and tertiarisation of employment - problems of unemployment and under-employment	
	5.2 Government policies on employment and wages and employment – employment guarantee scheme – minimum wage.	
	Movement of prices in India – –trends and patterns – causes, consequences and policies adopted. Papola in Jalan (ed.), Visaria in Jalan (ed). Zaghera in Sachs, Varshney and Bajpai (ed.).	
Readings Texts 1. Uma Kapila (ed). India's Economic Development Since 1947 (3rd Ed. or latest version). Academic. 2. S Chakraborty. 1987. Development Planning: The Indian Experience. Clarendon Press. 3. Vaidyanathan A.1994. Performance of Indian Agriculture since Independence in Kaushik Basu (ed.) Agrarian Question, Oxford University Press. 4. Bimal Jalan (ed.) The Indian Economy: Problems and Prospects Penguin. References 5. C D. Wadhwa. Some problems of India’s Economic Policy, Tata McGraw Hill. 6. J. Sachs, A Varshney and N Bajpai (ed). India in the Era of Economic Reforms. Oxford University Press. 7. I. Judge Ahluwalia. 1985. Industrial Growth in India since the Mid-sixties. Oxford University Press. 8. PC Joshi. 1975. Land Reforms in India: Trends and Perspectives. Allied Publishers: New Delhi. 9. Primit Chaudhuri. 1979. Indian Economy: Poverty and Development. George Allen and Unwin, London.		

	Paper VA: International Economics		
	Full Marks 50 : Total Lectures 80		
Unit	Topic		Lectures (No)
1	Basic Models of Trade		10
	1.1 Ricardian Model: Comparative advantage. 1.2 One factor economy: production possibility frontier, relative demand and relative supply and autarkic terms of trade. 1.2 Trade in Ricardian world: determination of international terms of trade, complete specialization, gains from trade.		
	Readings		

	<p>Texts International Economics: Paul R. Krugman, Maurice Obstfeld, (8th Ed.)Chapter 2, Pearson Education</p> <p>References World Trades and Payments: Caves, Frankel, Jones (9th Ed.)Chapter 3, Pearson Education International Economics: Dominick Salvatore (8th Ed.) Chapter 2, Wiley India.</p>	
2	Resources, Comparative Advantage, and Income Distribution	18
	<p>2.1 Model of two factor economy: Assumptions, Factor prices and commodity prices (Stolper-Samuelson effect)-correspondence, Resources & output, Rybzyński effect.</p> <p>2.2 Effects of International Trade between two factor economies, Relative prices and the pattern of Trade, Trade and distribution of Income, Factor Price Equalization.</p> <p>2.3 Empirical studies - Leontief Paradox.</p>	
	Readings	
	<p>Texts International Economics: Paul R. Krugman, Maurice Obstfeld, Chapter 4(8th Ed.), Pearson Education</p> <p>References International Economics: Dominick Salvatore (8th Ed.) Chapter 5, Wiley India World Trades and Payments: Caves, Frankel, Jones (9th Ed.)Chapter 6,Pearson Education</p>	
3	The Standard Trade Model	16
	<p>3.1 Production Possibilities and relative supply, relative prices and demand, welfare effects of changes in terms of trade, determining relative prices.</p> <p>3.2 Economic growth: shift of RS curve, growth and production possibility frontier, RS and terms of trade, International effects of growth, International transfers of income: shifting RD curve, Transfer problem, effects of transfer on terms of trade, Tariffs and export subsidies.</p> <p>2.3 Offer curves: Derivation, International Equilibrium.</p>	
	Readings	
	<p>Texts International Economics: Paul R. Krugman, Maurice Obstfeld, Chapter 5 (8th Ed.), Pearson Education</p> <p>References International Economics: Dominick Salvatore (8th Ed.) Chapter 3, Wiley India.</p>	
4	Trade Policy	18

	<p>4.1 Partial equilibrium analysis: Tariff- cost and benefit, effective rate of protection and intermediate goods, quota, tariff- quota equivalence and non-equivalence, export subsidy, voluntary export restraint.</p> <p>4.2 General Equilibrium Analysis: Distinction between small and large open economy, welfare effects of tariff in a small country, optimum tariff for large open economy, Metzler's paradox.</p> <p>4.3 Tariff & Import Quotas in presence of monopoly.</p>	
	Readings	
	<p>Texts International Economics: Paul R. Krugman, Maurice Obstfeld, Chapter 8 (8th Ed.), Pearson Education</p> <p>References International Economics: Dominick Salvatore (8th Ed.) Chapter 8, Wiley India World Trades and Payments: Caves, Frankel, Jones (9th Ed.)Chapter 10, Pearson Education.</p>	
5	Accounting, Income Determination and Exchange Rates	18
	<p>5.1 Balance of payment accounts; national income accounting in an open economy; monetary account;</p> <p>5.2 Determination of national Income, multiplier analysis, the transfer problem, introduction of foreign country and repercussion effect.</p> <p>5.3 Fixed and Flexible Exchange rates: Adjustments, Demand & Supply of foreign exchange, Effects of exchange rate changes on domestic prices and terms of trade, Marshall-Lerner condition, J-curve effect.</p>	
	Readings	
	<p>Texts International Economics: Paul R. Krugman, Maurice Obstfeld, Chapter 12(8th Ed.), Pearson Education (for 5.1 & 5.2) International Economics: Dominick Salvatore (8th Ed.) Chapter 16, 17 Wiley India (for 5.3)</p> <p>References Open Economy Macroeconomics: R Dornbusch, (International Students Edition), Basic Books, New York. World Trades and Payments: Caves, Frankel, Jones (9th Ed.) Chapter16, Pearson Education.</p>	

Paper VB: Public Finance		
Full Marks 50: Total Lectures 70		
Unit	Topic	Lectures (No)
1.	Introduction to public economics	2
	<p>1.1 The nature, scope and significance of public economics Musgrave and Musgrave Page 3-6. Bhatia Page 17-25.</p>	
2.	Forms and Functions of Government	8
	<p>2.1 Different forms of government – unitary and federal. Tiers of government in the federal form- Central, State, Local (Introductory discussion with examples).</p> <p>2.2 Functions of Government - Economic functions -allocation, distribution and</p>	

	<p>stabilization.</p> <p>2.3 Regulatory functions of the Government and its economic significance</p> <p>Musgrave and Musgrave Chapter 29, Chapter 1 Page 6-14. Stiglitz in Bagchi (ed.) Chapter 9, page 170-171.</p>	
3	Federal Finance	10
	<p>3.1 Federal Finance: Different layers of the government, Inter governmental transfer—horizontal vs. vertical equity.</p> <p>Musgrave and Musgrave Chapter 28, Page 457-461, Misra and Puri Chapter 53, page 694-698, 700-701.</p> <p>3.2 Grants—merits and demerits of various types of grants—unconditional vs. conditional grants, tied grants, matching grants.</p> <p>Musgrave and Musgrave, Chapter 28 Page 461—469, Misra and Puri Chapter 53 page 703-705.</p>	
4	Public Goods and Public Sector	10
	<p>4.1 Concept of public goods—characteristics of public goods, national vs. local public goods, determination of provision of public good</p> <p>4.2 Externality, concept of social versus private costs and benefits, merit goods, club goods.</p> <p>Musgrave and Musgrave, Chapter 4. McGuire in Bagchi (ed.) Chapter 5.</p> <p>4.3 Provision versus production of public goods. Market failure and public provision. Pricing of public goods—vertical summation</p> <p>Musgrave and Musgrave, Chapter 5</p>	
5.	Government Budget and Policy	12
	<p>5.1 Government budget and its structure – Receipts and expenditure - concepts of current and capital account, balanced, surplus, and deficit budgets, concept of budget deficit vs. fiscal deficit, functional classification of budget. Concept of Revenue Deficit.</p> <p>Bhatia Chapter 4 page 37-39, Chapter 13, page 248-253, Chapter 20 page 460-462; Musgrave and Musgrave Chapter 31, page 534-537, Chapter 12, page 211-216, Chapter 30, page 499-505; Chelliah in Bagchi (ed) Chapter 20.</p> <p>5.2 Budget, government policy and its impact. Budget multipliers.</p> <p>Stiglitz, Blinder and Solow, Fisher and Easterly in Bagchi (ed), Chapters 9, 16, 17.</p>	
6.	Revenue Resources	10
	<p>6.1 Concept of tax, types of tax – direct tax and indirect tax, canons of taxation, subsidy, transfer policy.</p> <p>H.L.Bhatia Chapter 4 page 39-49, Chapter 20 page 467-470.</p> <p>6.2 Principles of taxation -Ability to Pay principle (brief discussion), Benefit Approach (Actual Examples)</p> <p>Musgrave and Musgrave, Chapter 13, page 218-231</p> <p>6.3 Tax Design - introduction – truth seeking mechanism.</p>	

7.	Tax Structure	8
	<p>7.1 Effects of income tax on work effort, saving and risk bearing (just brief ideas). Musgrave and Musgrave Chapter 17, page 297-308, 311-312.</p> <p>7.2 Excess burden of indirect taxes Musgrave and Musgrave Chapter 16, page 293-295.</p> <p>7.3 VAT, Goods and Services Tax (pros and cons). Misra and Puri, 26th edition, page 662-663, Chelliah, Agarwal, Purohit and Rao in Bagchi (ed) Chapter 15.</p> <p>7.4 Non-tax revenue resources-earnings from public undertakings, interest on loans.</p>	
8.	Distribution and Stabilization	10
	<p>8.1 Instruments for stabilization Musgrave and Musgrave, Chapter 30</p> <p>8.2 Public Debt---internal and external. Musgrave and Musgrave Chapter 32, Misra and Puri, Chapter 51.</p> <p>8.3 Public Finance and Public Choice: The Role of State. Bagchi (ed), Chapter 24.</p>	
	Readings	
	<p>1. Musgrave and Musgrave: Public Finance in Theory and Practice (Fifth Edition).</p> <p>2. H.L. Bhatia. Public Finance. (Fifteenth Revised Edition).</p> <p>3. Amaresh Bagchi (ed.). Readings in Public Finance. Oxford University Press.</p> <p>4. Misra and Puri. Indian Economy.</p>	

Paper VIA: Comparative Development Experience		
Full Marks 50: Total Lectures 90		
Unit	Topic	Lectures (No.)
1.	International comparisons of development	3
	<p>1.1 Differences in initial conditions of development of less developed countries and present day developed countries.</p> <p>1.2 Nature of development gap prevailing at present between developed and less developed countries. Ref: Thirlwall Ch1 pp 13-21, Ch 2 pp 23-30.</p>	
2	Genesis of capitalism.	15

	<p>2.1 Different types of social organization, feudalism, precapitalist societies other than feudalism, capitalism in the West, development of the Third World Ref: Bagchi, Ch 1 pp 1-18.</p> <p>2.2 Industrial revolution in Great Britain - Causes – Why Great Britain became the pioneer? – Characteristics - Effects Ref: P Deane, Ch 1.</p>	
3	Industrialization Experiences in Early Part of 20th Century.	12
	<p>3.1 The Great Debate in Soviet Union on the assignment of priority on development of heavy industry in the process of planned economic development.</p> <p>3.2. The Great Depression of the 1930's and recovery – Experiences of USA and Great Britain. Ref: Maurice Dobb Chapter 8 or Alec Nove Chapter 5. H.U. Faulkner, Chapters 29 and 30. S.W. Southgate, Chap. 14, 35.</p>	
	Post Second World War Development Scenario	20
	<p>4.1 Global Change, Welfare state and mixed economy.</p> <p>4.2 Post War global institutions: International Monetary Fund, World Bank, United Nations Conference on Trade and Development. Ref: Todaro and Smith Chapter 14 (660-664). Thirlwall Chapter 15 (479-484), Chapter 16 (556).</p> <p>4.3 Trade and Strategies of Development: Infant industry, Import substitution versus export promotion in less developed countries. Illustrations from South Asia, Latin America and East Asia. Ref: Meier and Rausch Chapter 3 (144-145), chapter 4(156-162). Todaro & Smith Ch 13 pp 589-601. Thirlwall Chapter 16.</p> <p>4.4 Foreign Finance, Investment and Development: Private foreign direct investment and Multinational Corporations, private portfolio investment, development assistance debate. Ref: Todaro & Smith Ch 15. Thirlwall Ch 15.</p>	
5	Development and underdevelopment as historical processes	5
	<p>5.1 Dependency Approach.</p> <p>5.2 Unequal exchange. Ref: Thirlwall Chapter 7 (252-255). Dos Santos in Goddard, Cronin and Dash (ed.).</p>	
6	Evolution of New international economic order.	24
	<p>6.1 Neo liberalism, Washington consensus, North-South Divide, Recasting of IMF and World Bank. Ref: Thirlwall Chapter 15 (479-484), Chapter 17 595-607). Sen Chapter 2. Stiglitz Chapters 1, 2 and 3. Stiglitz in Nayyar (ed).</p> <p>6.2 General Agreements on Tariff and Trade (GATT) and the Dunkel Draft controversy-World Trade Organization (WTO). Ref: Sen Chapter 3. Sikdar Chapters 6 (123-131) and Chapter 7. Shukla in Nayyar (ed).</p> <p>6.3 Economic Integration and Regional Trading Blocs. Ref: Todaro and Smith Chapter 13 (613-617). Sikdar 6 (146-148, 151-153).</p> <p>6.4 Global Polarization. Ref: Samir Amin in Goddard, Cronin and Dash (ed.).</p>	
7	Development policies and role of the state	5

	7.1 Nature of Development planning, Rationale for development planning. Ref: Todaro and Smith: Ch 16 pp 714-718. 7.2 Washington Consensus, New Consensus and the State Ref: Todaro and Smith: Ch 16 pp 736-439.	
8	Some Recent Development Experiences	6
	(i) China, (ii) Africa (iii) Argentina. Ref: Meier and Rausch Chapter 1 (45-51, 62-72). Todaro and Smith Chapter 5 (223-224). Sen, pp 22-28.	
	<p>Readings</p> <p>Texts</p> <ol style="list-style-type: none"> 1. A.P. Thirlwall. Growth and Development. Palgrave MacMillan. (8th edition) 2. M.P. Todaro and S.C. Smith. Economic Development. Pearson Education. 3. G.M. Meier and J.E. Rauch. Leading Issues in Economic Development. Oxford University Press. (8th edition or latest). 4. Sunanda Sen. 2007. Globalisation and Development, National Book Trust, India 5. C. Roe Goddard, Patrick Cronin and Kishore C. Dash. (ed). International Political Economy. Viva Books Private Limited. (articles by Theotonio dos Santos and Samir Amin). (2nd edition). 6. Maurice Dobb. Soviet Economic Development since 1917. Chap. 8. Routledge and Kegan Paul. 7. H.U. Faulkner. American Economic History. Chap. 29 – 30. Harper and Row. 8. G.W. Southgate. English Economic History. Chap. 14, 35 J.M. Dent and Sons Ltd. 9. Phyllis Deane. The First Industrial Revolution. Cambridge University Press 10. A.K. Bagchi. The Political Economy of Underdevelopment. Orient Longman. <p>References</p> <ol style="list-style-type: none"> 11. J. Stiglitz. Globalisation and its Discontents. Penguin. 12. Soumyen Sikdar. Contemporary Issues in Globalisation. An Introduction to Theory and Policy in India. Oxford University Press. 13. D. Nayyar. 2002. Governing Globalisation, Issues and Institutions. Oxford University Press. 14. Alec Nove. An Economic History of the USSR. Penguin Books. 	

	Paper VIB: Contemporary Economic Issues: India and West Bengal		
	Full Marks 50: Total Lectures 80		
Unit	Topic		Lectures (No)
Group A	Contemporary Economic Issues –India.		
	Marks: 30		
1.	Economic Reform in India Since 1991		20

	<p>1.1. Background of Indian Economic Reforms – New Economic Policy. Redefining India’s development strategy. Changing Role of State and Market. Rangarajan in Uma Kapila, Chapter 5. Economic Survey 2009-10, Chapter 2 (21-24). Uma Kapila, Chapter 20.</p> <p>1.2 Industrial Policy, Disinvestment policy and Privatization. Basu and Maertens (page 141-146, 350-354, 366-371). Rangarajan in Uma Kapila, Chapter 21. Ahluwalia in Sachs, Varshney and Bajpai.</p> <p>1.3 Financial sector reforms including banking reform. Monetary Policy of RBI. Basu and Maertens (246-251, 219-225, 255-261). Joshi and Little, Chapter 4. Ahluwalia in Sachs, Varshney and Bajpai.</p> <p>1.4 Fiscal Policy Reform – tax reform, debt management, FRBM act and subsidies. Basu and Maertens (357-366, 141-146), Vijay Joshi in Ahluwalia and Little (ed). Ahluwalia in Sachs, Varshney and Bajpai.</p> <p>1.5 External sector reforms: Foreign Exchange market, balance of payments, reform, convertibility, export-import policy, foreign direct investment. Basu and Maertens (280-299, 305-307). Uma Kapila Chapter 24. Ahluwalia in Sachs, Varshney and Bajpai.</p>	
2	Agriculture, Poverty and Social Security	13
	<p>2.1 Post-reform Agricultural Performance and its Crisis. Basu and Maertens (59-65, 83-86). Mahendra Dev, Chapter 2. Rao and Jeromi in Uma Kapila, Chapter 13. Vaidyanathan in Uma Kapila, Chapter 14.</p> <p>2.2 Poverty and exclusion, NREGA, social security for unorganized workers and forest policy. Basu and Maertens (543-555, 110-113, 428-431, 86-89). Mahendra Dev Chapters 4 and 8. Vaidyanathan in Uma Kapila, Chapter 33.</p>	
3	Post-reform performance of Indian Economy	4
	<p>3.1 Appraisal of Indian Economic Reform. India’s Growth Experience. Uma Kapila Chapter 29. Basu and Maertens (24-32). Ahluwalia 2002. Ahluwalia in Sachs, Varshney and Bajpai.</p>	
4.	Indian economy: Some Current and Future Issues	18
	<p>4.1 Inclusive development Mahendra Dev, Introduction. Economic Survey 2009-10, Chapter 2 (21-24).</p> <p>4.2 Growth of the Service Sector. Basu and Maertens (205-215). M Rakshit 2007.</p> <p>4.3 Food security, Food Procurement and Public Distribution System. Basu and Maertens (484-489, 561-565). Mahendra Dev Chapter 3 (43-46, 62-66), Chapter 5. Hanumantha Rao in Uma Kapila, Chapter 15. Economic Survey 2009-10, Chapter 8 (198-204) (or latest issues).</p> <p>4.4 Migration and Urbanization. Basu and Maertens (443-447). Agarwal, Chapter 7 (86-101)</p> <p>4.5 Land acquisition, SEZ and Industrialisation. Basu and Maertens (103-109, 164-68), Aradhana Agarwal 2006, Swapna</p>	

	Banerjee-Guha 2008. 4.6 Demographic dividend. Basu and Maertens (415-421). Chandrasekhar, Ghosh and Roy Choudhury (2006). Uma Kapila, Chapter 9.	
Group B	Contemporary Economic Issues -West Bengal Marks – 20	
5	West Bengal Economy: An Overview	10
	5.1 West Bengal Economy Structure and Growth – based on state domestic product (SDP) data and employment data from National Sample Survey and Census of India.	
	5.2 West Bengal Economy in relation to India and major states in recent decades: in terms of indicators on - per capita SDP, per capita consumption (rural and urban), income growth, human development.	
6	Growth and Development of West Bengal Economy	15
	6.1 Land Reforms, agricultural growth and related current problems- growth of non-farm rural sector	
	6.2 Industrial development – problems and prospects; Tertiary sector growth – Informalisation in manufacturing and tertiary sectors.	
	6.3 Poverty alleviation, Employment generation, self-help-group and social security: Problems and policies	
Readings		
For India:		
Texts		
1. K. Basu and A. Maertens. The Concise Oxford Companion to Economics in India. Oxford University Press.		
2. Uma Kapila (ed). India's Economic Development Since 1947 (3rd Ed. or latest version). Academic.		
3. S. Mahendra Dev. 2007. Inclusive Growth in India. Oxford University Press.		
4. Agarwal, A.N. 2003, Indian Economy: Problems of Development and Planning (29 th Edition) Wishwa Prakashani		
References		
4. M.S. Ahluwalia. 2002. “Economic Reforms in India since 1991: Has Gradualism Worked?” The Journal of Economic Perspectives, Vol. 16, No. 3.		
5. I.J. Ahluwalia & I.M.D. Little (ed.). 1999. India’s Economic Reforms and Development, Essays in honour of Manmohan Singh, Oxford University Press, New Delhi.		
6. V. Joshi and I.M.D. Little. India’ Economic Reforms 1991-2001. Oxford University Press.		
7. M Rakshit. 2007. “Services-led growth: The Indian Experience” in Money and Finance, February.		
8. C.P. Chandrasekhar, J. Ghosh and A Roy Choudhury. 2006. “The Demographic Dividend and Young India’s Economic Future,” in Economic and Political Weekly, 9 December.		
9. G S Bhalla. 2004. Globalisation and Indian Agriculture: State of the Indian Farmer. Academic Publishers: New Delhi.		
10. Government of India (annual) Economic Survey of India (Current years), also see Economic Survey 2009-10, Chapter 2.		
11. Aradharna Agarwal. 2006. Special Economic Zones: Revisiting the Policy Debates. Economic and Political Weekly. November 4.		

12. Swapna Banerjee-Guha. 2008. Space Relations of Capital and Significance of New Economic Enclaves: SEZs in India. Economic and Political Weekly. November 22.
13. J. Bhagwati. India in Transition. Clarendon Press.
14. J. Sachs, A Varshney and N Bajpai (ed). India in the Era of Economic Reforms. Oxford University Press.

For West Bengal:

1. Montek Singh Ahluwalia, 2006, "Economic Performance of States in Post Reform Period", Economic and Political Weekly (May 6).
2. B B Bhattacharyya & S Sakthivel, 2004, "Regional Growth and disparity in India – Comparison of Pre and Post Reform Decades", Economic and Political Weekly (March 6)
3. Ratan Khasnabis, 2008, "The Economy of West Bengal", Economic and Political Weekly (December 27)
4. A. Raychaudhuri & Tuhin Das (ed.). 2005. West Bengal Economy: Some Contemporary issues, Allied Publishers
5. Economic and Political Weekly, 1998, 33 (47-48) articles on West Bengal Economy
6. West Bengal Human Development Report, 2004, Oxford University Press
7. B Rogaly, B Barbara Hariss-White and S Bose. 1999. Sonar Bangla? Agricultural Growth and Agrarian Change in West Bengal and Bangladesh. Sage Publications.

Paper VIIA: Statistics & Basic Econometrics		
Full Marks 50: Total Lectures 90		
Unit	Topic	Lectures (No)
1	Joint Probability Distribution	10
	Joint Probability Distribution – Idea of Independence, Marginal and Conditional Distribution. Expectation of the product of two variates.	
2	Sampling Theory	5
	2.1 Population and Sample, Parameter and Statistic, Random Sampling - Methods of Drawing Random samples –with replacement and without replacement, Random sampling Numbers. 2.2 Sampling Distribution, Standard Error. Mathai & Rathie – Probability and Statistics Goon, Gupta, Dasgupta – Fundamentals of Statistics, Vol I	
3	Sampling Distribution	15
	3.1 Sampling Distributions associated with Normal Population, Expectation and Standard Error of Sample Mean for with replacement and without replacement random samples, 3.2 Chi-Square Distribution, Student t Distribution, F-Distribution (definition and important properties only-Idea of degrees of freedom. Mathai & Rathie – Probability and Statistics Goon, Gupta, Dasgupta – Fundamentals of Statistics, Vol I	
3	Classical Statistical Inference	25
	4.1 Estimators-Desirable properties of estimators -Unbiasedness, Minimum Variance, Consistency and Sufficiency 4.2 Point Estimation - Maximum Likelihood Estimators and their properties – 4.3 Maximum Likelihood estimation of the parameters of Binomial, Poisson and Normal Distributions.	
	4.4 Confidence Intervals -Testing of Hypothesis -p-Values -Type-I and Type -II Errors 4.5 Simple applications of tests for the Mean and Variance of a Univariate Normal Population. Mathai & Rathie – Probability and Statistics Goon, Gupta, Dasgupta – Fundamentals of Statistics, Vol I	
5	Elementary Econometrics	25

	<p>5.1 Classical Linear Regression Model (CLRM): Specification of the Model- Assumptions- Linearity in variables and parameters, Estimation of the Error Variance</p> <p>5.2. Gauss Markov Theorem, Goodness of fit: R square –Coefficient of Determination</p> <p>5.3 Inference in the Linear Regression Model- Confidence interval for the parameters and the Testing of Hypotheses -Prediction with the Simple Regression model.</p> <p>5.4 Concepts of Heteroscedasticity and Autocorrelation problems.</p> <p>G.S. Maddala – Introduction to Econometrics D. Gujarati – Basic Econometrics.</p>	
6	Time Series Data	10
	<p>6.1 Time Series: Introduction, Components, Measurements: Secular Trend (Free hand curve fitting, Moving averages, fitting mathematical curves), Seasonal fluctuation (monthly averages, ratio to moving averages, ratio to trend)</p> <p>Goon,Gupta,Dasgupta – Fundamentals of Statistics, Vol II</p>	
	Readings	
	<p>Text</p> <ol style="list-style-type: none"> 1. Goon,Gupta,Dasgupta – Fundamentals of Statistics, Vol I & II, World Press Private Limited 2. Mathai & Rathie – Probability and Statistics, The Macmillan Company of India Limited 3. G.S. Maddala – Introduction to Econometrics. Wiley Publishers (Indian edition). 4. D. Gujarati – Basic Econometrics, Tata McGraw-Hill Publishing Company Limited 	
	References	
	5.Earl K. Bowen & Martin K. Starr, Basic Statistics for Business and Economics, McGraw Hill International Student Edition.	

	Paper VIIB: Applied Economics	
	Group A: Application of Economics to Managerial Issues	
	Full Marks 50 : Total Lectures 75	
Unit	Topic	Lectures (No)
1	Nature and Scope of Managerial Economics	5
	1.1 Nature and Scope of Managerial Economics; 1.2 Basic Economic Tools in Managerial Economics: Opportunity Cost Principle,	

	<p>Incremental Principle, Principle of Time Perspective, Discounting Principle and Equi-marginal Principle; 1.3 Managerial Economist- Role and Responsibilities. Ref: Varshney and Maheshwari Ch-1,2,3 (page 1-27).</p>	
2	Demand, Cost and Profit Analysis	15
	<p>2.1 Demand Analysis: Demand Estimation for major consumer durables, non-durable products; Demand forecasting techniques. Ref: Keat and Young Ch-5,6 (188-288)</p> <p>2.2 Cost Estimation Ref: Keat and Young Ch-8 (355-417)</p> <p>2.3 Cost-Volume-Profit Analysis (Break-Even Analysis) : What is C-V-P Analysis? Objectives of C-V-P Analysis, Assumptions of C-V-P Analysis Determination of Break-even point, Profit-Volume Graph, Profit-Volume Ratio, Margin of Safety, Uses and Applications of Break-Even Analysis, Limitations of C-V-P Analysis. Ref: P.L. Mehta Ch-20 p-405 to 450.</p>	
3	Organizational Design, Principal-Agent Analysis & Incentive Design	10
	<p>The Nature of the Firm, the Breadth of the Firm, Assigning Decision-Making Responsibilities, Monitoring & Rewarding performance, Separation of Ownership & Control in the Modern Corporation. Ref: Samuelson & Marks Ch-15 (641-677). And Anindya Sen Ch-7 (105-112), ch-15 (246-250)</p>	
4	Pricing Policies and Practices:	10
	<p>Factors Governing Prices, Objectives of Pricing Policy, Price Leadership, Full – Cost Pricing, Mark-up Pricing, Limit Pricing, Marginal Cost Pricing or Variable Cost Pricing, Rate of Return Pricing, Going-Rate Pricing, Peak-Load Pricing, Cyclical Pricing, Pricing over the life-cycle of a product (a) Skimming Price (b) Penetration Price (c) Pricing in Maturity; Product-line pricing, Price Discounts and Differentials, Price Forecasting. Ref: P.L. Mehta Ch-15, 16, 17 (329-378).</p>	
5	Capital Budgeting	10
	<p>What is Capital Budgeting? Need for Capital Budgeting; Different Steps in the Capital Budgeting Process; Nature of Capital Budgeting Problem; Capital Budgeting Appraisal Methods (a) Payback Method (b) Accounting Rate of Return Method (c) Net Present Value Method (d) Internal Rate of Return Method (e) Benefit-Cost Ratio Method; Comparison between NPV and IRR Methods; Capital Rationing; Alternative Methods of Financing Investments. Ref: P.L. Mehta Ch-21 (451-484).</p>	
6	Cost of Capital	7
	<p>Cost of Debt Capital, Cost of Preference Share Capital, Cost of Equity Capital, Cost of Retained Earnings, Average Cost of Capital, The Opportunity Cost Concept – Borrowing Rate vs. Lending Rate. Ref: Varshney and Maheshwari Ch-29 (358-368) or P.L. Mehta Ch-22 (485-491).</p>	

7	Inventory Management	10
	Inventory Costs, Concept of Average Inventory; Various Inventory Models: (a) Economic Order Quantity (EOQ) (b) Optimum number of Orders per year (c) Optimum no. of Days' Supply per Order; Quantity Discounts – Cost Comparison Approach; EOQ Concept and Production Processes. Ref: Varshney and Maheshwari Ch-41 (473-481) or P.L. Mehta Ch-12 (254-269).	
8	Corporate Governance	8
	Role of Institutional Investors, Mechanisms and Controls – Internal and External Govt Controls, Problems of Corporate Governance, Role of Accountant, Regulation – Rules & Principles, Enforcement, Action beyond obligation, Corporate Governance Models with emphasis on Anglo American Model, Impact of Corporate Governance on Firm Performance. Ref: Anindya Sen Ch-7, (112-119). Thomas Clarke- International Corporate Governance, Routledge	
	Readings	
	Texts 1. Varshney, R.L and Maheshwari, K.L - Managerial Economics, Sultan Chand, New Delhi 2. Keat, Paul G and Young, Philip K.Y - Managerial Economics, Pearson Education, New Delhi 3. Mehta, P.L - Managerial Economics, Sultan Chand, New Delhi 4. William F. Samuelson and Stephen G. Marks – Managerial Economics. Wiley Student Edition. 5. Thomas Clarke – International Corporate Governance Routledge, 2007. 6. Anindya Sen – Microeconomics, Oxford University Press. References 7. Debroy, Bibek - Managerial Economics, All India Management Association & Global Business Press 8. James A. Brickley, Clifford W. Smith, Jr., and Jerold L. Zimmereman - Managerial Economics & Organizational Architecture, Tata McGraw Hill. 9. Colley, J, Doyle, J, Logan, G & Stettinius, W – What Is Corporate Governance, McGraw Hill, New York 10. Monks, Robert A G & Minow, Nell - Corporate Governance, Blackwell. 11. Bhattacharya, Harasankar and Sarkhel, Jaydeb – Managerial Economics, Book Syndicate Pvt Ltd, Kolkata	

Paper VIIB: Applied Economics		
Group B: Mathematical Economics		
Full Marks 50: Total Lectures 75		
Unit	Topic	Lectures (No)
1	Theory of the Consumer	10
	Utility maximization, Lagrangian multiplier, Indirect Utility function, Roy's Identity, Derivation of Slutsky's equation, Slutsky's Equation in elasticity form, Compensated demand curve	

	Different forms of Utility Function—Separable, quasi-linear, homogeneous and homothetic Labour-leisure choice Ref: Simon & Blum, Chapter 22 Section 22.1, Chiang & Wainwright, Chapter 12, Silberberg & Suen, Chapter 10	
2	Theory of the Firm	15
	2.1 Output maximization, Cost minimization, Homogeneous and homothetic production functions, Elasticity of substitution, CES production function, Relationship between average cost and marginal cost 2.2 Factor demand curves, output elasticity, Analysis of firms in competitive equilibrium and monopoly, imposition of taxes 2.3 Analysis of factor demands in the long run 2.4 Fixed coefficient production functions, Leontief Input-Output system. Ref: Simon & Blum, Chapter 22 Section 22.2, Chiang & Wainwright, Chapter 12, Silberberg & Suen, Chapter 4	
3	Games and Decisions	10
	Two person matrix games, solving matrix games with mixed strategies Sequential Games and Decisions Ref: Aliprantis & Chakrabarti, Chapter 2,3,4	
4	Inter-temporal Choice Theory	5
	4.1 n-period utility maximization, Time preference, Stocks and flows Ref: Silberberg & Suen, Chapter 12	
5	Behaviour under uncertainty	5
	5.1 Uncertainty and Probability, State preference approach for preferences 5.2 Expected Utility Hypothesis, Risk aversion and its measures. Ref: Silberberg & Suen, Chapter 13	
6	Comparative Statics	10
	6.1 Generalisation to n variables: First and Second order conditions 6.2 Profit maximisation: n factors and Utility Maximisation 6.3 National Income Model, IS-LM Model 6.2 Simple Trade Models Ref: Silberberg & Suen, Chapter 6, Chiang & Wainwright, Chapter 8.	
7	Application of Difference and Differential Equations	20
	7.1 Cobweb Model 7.2 Multiplier-Accelerator Interaction Model 7.3 Linear Systems via Eigen values 7.4 Solution of linear systems by substitution 7.5 Phase diagrams of linear systems 7.6 Solow model. Ref: Chiang & Wainwright, Chapter 17, 18	
	Readings:	
	Aliprantis, D C. and S. K. Chakrabarti (1999) Games and Decision Making, Oxford University Press. Chiang, A. C. and Wainwright (2005) (Fourth Edition): Fundamental Methods of Mathematical Economics, McGraw-Hill. Silberberg, E and W. Suen (2001) (Third Edition): The Structure of Economics, A Mathematical Approach, McGraw-Hill.	

	Simon, C.P and L. Blume (1994): Mathematics for Economists, Norton & Company Schaum's Easy Outline of Introduction to Mathematical Economics (2005)	
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Paper VIIIA: Indian Economic History		
Full Marks 50 : Total Lectures 55		
Unit	Topic	Lectures (No)
1	Economic condition in India on the eve of British rule	3
2	Aspects of Economic Policies under in British India	25
	2.1 Land policy	
	2.2 Policy of Discriminating Protection	
	2.3 Early Industrial Development and Managing Agency System	
	2.4 Currency and monetary policy	
	2.5 Infrastructure and Transport	
3	Impact of British rule on India	25
	3.1 Deindustrialisation	
	3.2 Commercialisation of agriculture	
	3.4 Economic Drain	
4	Early Economic planning initiatives during British rule	2
	Readings 1. Dharma Kumar (ed). Cambridge Economic History, Vol II. 2. V B Singh (ed.). Economic History of India (1857-1956). 3. Dhires Bhattacharyya. Concise Economic History of India. 4. D R Gadgil. Industrial Evolution of India in Recent Times. 5. A K Bagchi. Private Investment in India (1900-1939). 6. Bipan Chandra. Rise of Economic Nationalism. 7. Rothermund, Dietmar. 1988. An Economic History of India, From Pre-colonial times to 1986, Croom Helm, London. 8. Tirthankar Roy. The Economic History of India 1857-1947. Oxford University Press. (2 nd edition).	

Paper VIIIB : Term Paper		
Full Marks 50 : Total Lectures: 15		
Unit	Topic	Lectures (No)
	The college should arrange for 10 to 15 lectures to inform the students on the method of preparing for and writing the term paper.	

Syllabus for BA/BSC (General)

Paper IA: Microeconomics I		
Full Marks 50: Total Lectures 45		
Unit	Topic	Lectures (No)
1	Economics and Microeconomics	8
	1.1 What is economics? Branches of Economics. What is microeconomics? 1.2 Economic agents and their activities as consumer, producer, investor. Concepts of demand and supply, and markets.	
2	Demand and Consumer Behaviour	19
	2.1 What is demand? Law of Demand - Demand curve and its foundation in consumer behaviour 2.2 Utility Approach: Total and Marginal Utility-Law of Diminishing Marginal Utility -. Relation between Law of Demand and Law of Diminishing Marginal Utility. 2.3 Indifference Curve Approach: Definition and Characteristics-Consumer's,-Equilibrium- income Effect and Substitution Effect-Price Effect. 2.4 Elasticity of Demand: Price Elasticity and Income Elasticity of Demand, Measurement of Price Elasticity.	
3	Producer's Behaviour	18
	3.1 Concept of production –raw material and factors of production-technology – organization of production – large scale vs. small scale production. 3.2 Production technology and production Function – total product, average product, marginal product (with numerical example) - Returns to Factor and Returns to Scale. 3.3 Cost of Production: Real Cost and Opportunity Cost-Fixed and Variable cost; Cost curves -Shape of Cost Curves (Short-run and Long run)-Relation between Average Cost and Marginal Cost. 3.4 Revenue - Total Revenue, Average revenue, Marginal Revenue - Relation between Average Revenue, Marginal Revenue and Price Elasticity of Demand.	
	Readings	
	1. Stonier, A. W. and D.C. Hague: A Text Book of Economic Theory, Longman Group, London. 2. Samuelson, P.A. and William D: Economics, McGraw Hill Book Co., Nordhaus, Singapore. 3. Lipsey, R.G.: An Introduction to Positive Economics, Weidenfeld and Nicholson, London.	

Paper IB: Macroeconomics I		
Full Marks 50: Total Lectures 45		
Unit	Topic	Lectures (No)
1	National Income Accounting	7
	1.1. National Income Concepts: Distinction between Goss Domestic Product, Net Domestic Product and Net National Product 1.2. Different Methods of Measuring National Income.	
2	Money and Banking	14
	2.1 Concept and Functions of Money- Value of Money-Money supply – components of money supply (M1, M2, etc) 2.2 Quantity Theory of Money: Fisher's Version and Cambridge Version 2.3 Banking: Functions of Commercial Banks: Credit Creation –role in money supply –Functions of Central Banks: Credit Control Methods.	
3	Consumption and Investment	14
	3.1 Concept of aggregate consumption – private vs public consumption - Keynesian Consumption Function -Relation between Average and Marginal Propensity to Consumer-Multiplier Theory 3.2 Concept of aggregate investment – components of investment – aggregate investment function and determinants of investment	
4	Government sector	10
	4.1 Transactions of the Government sector -Budget – receipts and expenditures –revenue account and capital account 4.2 Principles of Taxation: Direct and Indirect Taxation –Regressive, Progressive and Proportional Taxation 4.3 Public Debt- Internal & external –purpose and implications	
	Readings	
	1. Stonier, A.W. and D.C. Hague. : A Text Book of Economic Theory, Longman Group, London	
	2. Lipsey & Chrystal : An Introduction to Positive Economics	
	3. Gupta, S.B. : Monetary Economics, S.Chand & Co;New Delhi.	

Paper IIA: Microeconomics II		
Full Marks 50: Total Lectures 45		
Unit	Topic	Lectures (No)
1	Theory of Markets	
	1.2 Concepts of Perfect Competition, Monopoly, Monopolistic Competition, Oligopoly. 1.3 Short-run and Long-run Equilibrium under perfect Competition at the Firm level, as well as industry level. Idea of price discrimination. 1.4 Price and Output Determination under Monopoly.	20
2	Theory of Distribution	25
	2.1 Marginal Productivity Theory of Distribution-Factor Price	

	<p>Determination.</p> <p>2.2 Rent: (a) Ricardian Theory, (b) Modern Theory.</p> <p>2.3 Wage: Distinction between Money Wage and Real Wage-Factors Determining Real Wage-Role of Trade Union in Wage Determination under competitive set up.</p> <p>2.4 Interest: Real and Money Interest Loanable fund and liquidity preference theory of interest.</p> <p>2.5 Profit: Alternative theories of profit.</p>	
	Readings	
	<p>1. Stonier, A. W. and D.C. Hague: A Text Book of Economic Theory, Longman Group, London.</p> <p>2. Samuelson, P.A. and William D: Economics, McGraw Hill Book Co., Nordhaus, Singapore.</p> <p>3. Lipsey, R.G.: An Introduction to Positive Economics, Weidenfeld and Nicholson, London.</p>	

Paper IIB: Macroeconomics II		
Full Marks 50: Total Lectures 45		
Unit	Topic	Lectures (No)
5	Theories of Income and Employment	15
	<p>4.1 Concept of Classical Theory of Employment and output-Say's Law of markets.</p> <p>4.2 Simple Keynesian theory of Income and Employment: Concept of Effective Demand.</p>	
6	Prices and Inflation	15
	<p>6.1 Concept of price index –alternative price indices and measurements of inflation rate</p> <p>6.2 Concept of Inflation, Deflation and Stagflation: Inflationary Gap - Distinction between Demand-pull and Cost-Push Inflation</p> <p>6.3 Anti-Inflationary Monetary and Fiscal Policies -Effects of Inflation</p>	
7	External Sector	15
	<p>7.1 International Trade: Distinction between Internal and International Trade –exports and imports in goods and services.</p> <p>7.2 Basis of Trade: Concepts of absolute advantage and comparative Advantage -Arguments for Free Trade – Argument for Protection.</p>	
	Readings	
	1. Stonier, A.W. and D.C. Hague. : A Text Book of Economic Theory, Longman Group, London	
	2. Lipsey & Chrystal : An Introduction to Positive Economics	
	3. Gupta, S.B.: Monetary Economics, S.Chand & Co; New Delhi.	

Paper IIIA: Indian Economy I		
Full Marks 50 : Total Lectures 45		
Unit	Topic	Lectures

		(No)
1	Indian Economy –An Overview	9
	1.1 The structure of Indian Economy – its sectoral composition, rural-urban dimension –India’s per capita income – relative position relation to developed and underdeveloped economies 1.2 Features and Causes of Underdevelopment of the Indian Economy	
2	NI Trends	8
	National Income of India: Trend, Estimation and Distribution.	
3	Demography	10
	3.1 The trends and pattern of population growth –age distribution – demographic rates and population projection 3.2 The nature of population problem in India and government policies related to population	
4	Dualism	8
	Dualism, in the Indian Economy: Poverty Line-Poverty Eradication Programmes in India.	
5	Indian Planning	10
	5.1. Background for Indian Planning and Planning process and institutions 5.2 Objectives, achievements and failures of India's Five-year Plans (broad outline)	
	Readings	
	1.Dutta, R. & K.P.M. Sundaram : Indian Economy, S. Chand & Co. New Delhi.	
	2.Misra, S.K. & V.K. Puri : Indian Economy, Himalayas Publishing Co. Mumbai	
	3.Agarwal, A.N.: Indian Economy, Vikash Publishing Co. Delhi.	
	4.Gupta, S.B.: Monetary Planning in India Oxford University Press, Delhi.	
	5.Dhar, P.N. : Indian Economy.	

	Paper IIIB: Indian Economy II	
	Full Marks 50: Total Lectures 45	
Unit	Topic	Lectures (No)
1	Indian Agriculture	10
	1.1 Characteristics of Indian Agriculture: Causes of Low Productivity. 1.2 Land Reforms: Meaning, importance. Evaluation of the Programmes. 1.3 New technology and Green Revolution and its effects 1.4 Effects of Economic Reforms on Indian Agriculture.	
2	Indian Industry	10
	2.1 Structure of Indian industry -Role of Cottage, Small-scale and Large-scale Industries in India's development. 2.2 Problems and strategies of industrial development Economic Development -Problems and Solutions. I	

	2.3 Industrial Labour, Industrial Finance, Industrial Policy.	
3	Finance in India	8
	3.1 Financial Markets and Financial system in India 3.2 Banking: Role of Indian Commercial Banks - Credit Control Policy of Reserve Bank of India	
4	Indian Public Finance	10
	4.1 Central and state budgets – revenue account and capital account - Sources of Revenue of Union and State Governments –direct and indirect tax – major heads of expenditures – plan vs. non-plan expenditures 4.2 Union-State Financial Relation – Role of Finance Commission of India.	
5	India's Foreign Trade	7
	5.1 Importance of foreign trade for Indian Economy 5.2 India's Foreign Trade: Change in volume and direction of trade in the post liberalisation period.	
	Readings	
	1. Dutta, R. & K.P.M. Sundaram: Indian Economy, S. Chand & Co. New Delhi.	
	2. Misra, S.K. & V.K. Puri: Indian Economy, Himalayas Publishing Co. Mumbai	
	3. Agarwal, A.N: Indian Economy, Vikash Publishing Co. Delhi.	
	4. Gupta, S.B: Monetary Planning in India Oxford University Press, Delhi.	
	5. Dhar, P.N: Indian Economy.	

Paper IVA: Development Economics I		
Full Marks 50: Total Lectures 45		
Unit	Topic	Lectures (No)
1	Distinction between Economic Growth and Economic Development: Net National Income and Per Capita Income as Growth Indicators- Concept Of HDI.	10
2	Development Planning & its necessity -balanced vs. unbalanced growth. Complementary Roles of Agriculture and Industry -Role of Technology in Agriculture and Industry.	10
3	Population and Economic Development: The Two Way Relation. Domestic Capital Formation in an Underdeveloped Country: The Problems -Incentives for Savings and Investment.	10
4	Foreign Investment: Different forms -Their roles in Economic Development. Role of IMF & World Bank in economic development of the LDCS.	10
5	Gender Related Issues.	5

	Readings	
	1. Todaro, M.P.: Economic Development in the Third World, Longman, New York.	
	2. Salvatore, D. and E. Dowling: Development Economics, Schaum's, Outline Series in Economics, McGraw Hill, New York.	
	3. Agarwala, A.N. and S.P. Singh: Economics of Underdevelopment, (eds.) Oxford University Press, London.	
	4. Meier, G.M. (ed.): Leading Issues in Economic Development, Oxford University Press, New York.	
	5. United Nations Development Programme, Human Development Report (Recent Years)	
	6. Todaro, M.P. : Economic Development in the Third World, Longman, New York. 7. Salvatore, D. and E. Dowling : Development Economics, 8. Schaum's Outline Series in Economics, McGraw Hill, New York. 9. Agarwala, A.N. and S.P. Singh : Economics of Underdevelopment, (eds.) Oxford University Press, London. 10. Meier, G.M. (ed.) : Leading Issues in Economic Development, Oxford University Press, New York. 11. United Nations Development Programme, Human Development Report (Recent Years)	

	Paper IVB: International Economics & Statistics	
	Full Marks 50: Total Lectures 45	
Unit	Topic	Lectures (No.)
Group A	International Economics. Full Marks: 25	
1.	Comparative Advantage and Protectionism: Principle of Comparative advantage, Ricardo's analysis, Economic Gains from trade, Graphical Analysis of comparative advantage, Equilibrium Price ratio, Extensions to many commodities and countries, Protectionism: Supply and demand analysis of trade and tariffs, Free Trade, Trade barriers, Prohibitive Tariff, Non-prohibitive Tariff, Quotas, Economic costs of tariff. Arguments for protection	12
	Readings: Economics: Samuelson & Nordhaus, Tata McGraw_Hill, Chapter 35	
2.	Balance of Payments: Debits and Credits, Balance on Current Account and Capital Account, Exchange rates and Balance of Payments	7
	Readings:	

	Economics: Samuelson & Nordhaus, Tata McGraw_Hill,Chapter 34, pp 682 - 685	
Group B	Statistics. Full Marks: 25	
1.	Data – Classification and presentation, Population and Sample, Collection of Data - Variable and Attribute, Frequency Distribution – Diagrammatic representation of frequency distribution – Cumulative frequency - Ogive.	10
2.	Central Tendency- Arithmetic Mean, Median and Mode (for both grouped and ungrouped data)	9
3.	Dispersion: Range and Standard Deviation, Measures of Relative Dispersion – Curve of Concentration, Concepts of Measurement of Economic Inequality: Lorenz Curve.	7
	Readings:	
	1. Basic Statistics: Goon,Gupta, DasGupta, The World Press Pvt. Ltd., 2. Statistical Methods: N.G. Das, Vol. I, Paperback 1 st Edition, Tata McGraw-Hill, 3. Basic Statistics: Basic Statistics (s) 2nd Edition. R. K Das, A I Nagar Oxford University, Paperback.	

Syllabus of Three Year Degree Course in EDUCATION (Hons)

EDUCATION-HONOURS

Part-I Paper-I

PHILOSOPHICAL FOUNDATION OF EDUCATION AND CONTRIBUTION OF GREAT EDUCATORS

COURSE OBJECTIVES:

1. To understand the meaning, aims, functions and role of education.
2. To understand the relation between education and philosophy.
3. To be acquainted with Indian and western schools of philosophy and their impact on education.
4. To be acquainted with the contribution of great educators.

GROUP-A

Philosophical foundation of education

MODULE-I

Approximate lecture Hours

- | | |
|---|-----|
| 1. Concept and aims of modern education with special reference to Delor' s commission (UNESCO, 1997) | (4) |
| 2. Child centric and Life centric education. | (4) |
| 3. Functions and scope of education-Individual and social perspective.
Education for Human Resource development. | (9) |
| 4. Education as propagation of values. | (3) |

MODULE-II

- | | |
|--|----------------|
| 5. Role of Philosophy in Education. | (2) |
| 6. Schools of philosophy and their influence on education: Idealism, Naturalism, and Pragmatism. | (9) |
| 7. Schools of Indian Philosophy ***
Basic features and Influence on Education- | (9) |
| a) Vedic schools (Sankhya, yoga, Nyaya) | |
| b) Non-Vedic schools (Charvak, Buddhist, Jain) | |
| | Total Lect. 40 |

*No broad question from this portion.

GROUP-B

CONTRIBUTION OF GREAT EDUCATORS:

MODULE-I

	Approximate Lecture Hours
1. Rousseau.	(6)
2. Froebel	(5)
3. Montessori	(5)
4. Bertard Russell.	(4)

MODULE-II

5. Dewey.	(7)
6. Rabindranath Tagore	(7)
7. Vivekananda	(6)

Total Lect. 40

References:

- | | |
|-----------------------|--|
| 1. Aggarwal.J.C. | -Theory and Principles of education Philosophical and Sociological Bases of education. |
| 2. Banerjee, A | -Philosophy and principles of education. |
| 3. Chakraborty, J.C. | -Modern education. |
| 4. Kundu and Majumder | -Theories of education. |
| 5. Mukherjee, K.K. | -Some great educators of the world. |
| 6. Mukherjee, K.K. | -Principles of education. |
| 7. Munro. | -History of education. |
| 8. Purkait, B.R. | -Great Educators. |

Bengali Books:

- | | |
|--------------------------------------|----------------------------------|
| 1) Sushil Ray | -Shiksha Tatta. |
| 2) Arun Ghosh | -Shiksha tatta & Shiksha Darshan |
| 3) Bibhuranjan Guha | -Shikshaya Pathikrita. |
| 4) Gouridas Halder & Prasanta Sharma | -Shiksha Tatta & Shiksha Niti. |

PAPER-II

PSYCHOLOGICAL FOUNDATION OF EDUCATION

COURSE OBJECTIVES:

1. To understand the meaning of Psychology, and be acquainted with its different perspectives.
2. To realize the relationship between Psychology and education.
3. To know the patterns of different aspects of human developments and relate this knowledge with Education.
4. To be acquainted with the cognitive approach to development and thus to understand the processes and factors of cognition.

GROUP-A

DEVELOPMENTAL ASPECTS OF PSYCHOLOGY

MODULE-I

Approximate Lecture Hours

1. Introduction to Psychology, relation between education and Psychology. Different perspectives of psychology (Biological, Cognitive, Developmental, Associationist – A brief overview). (12)
2. Personality development. Psychoanalytical theory of Personality, Erikson’s Stages of Psycho-social development. (8)

MODULE-II

3. Stages and types of Development and their Educational significance:
 - a) Physical and motor development, Factors affecting Physical and motor development.
 - b) Cognitive development, brief outline of Piaget’s theory of Cognitive development.
 - c) Emotional development, Common patterns, Emotional balance and Emotional Quotient.
 - d) Moral development, Theories of Piaget and Kohlberg. (20)

Total 40

GROUP-B

Cognitive approach

MODULE –I

Approximate Lecture Hours

- 1) Neural basis of cognition: Neuron – structure and electrical Potentials, synoptic transmission, structure and functions of human brain, Neuro –endocrinal system. (6)
- 2) Perception: Factors influencing perception, role in cognition. (3)
- 3) Attention: Selective and divided attention. Role of attention in the Cognitive process. Factors of attention. (4)
- 4) Memory: acquisition, storage and retrieval of information. Sensory memory, short term and long term memory, forgetting. (7)

MODULE-II

- 5) Motivation: types and factors. (2)
- 6) Learning: Laws of learning, classical and operant conditioning. Insight learning, concept learning, Bandura’s social learning theory. Transfer of learning: Concept and application. (10)
- 7) Intelligence : Theories of intelligence –Spearman, Thurston, Guilford and Gardener. (8)

Total Lect. 40

References:

- 1) Spear, P.D., Penrod, S.D., and Baker, T.B. (1988), Psychology: Perspectives on Behaviour, New York: John Wiley.
- 2) Berk, L.A. (2003). Child development, Delhi: Pearson Education.
- 3) Baron, R.A. (2001). Psychology, Delhi: Prentice Hale.
- 4) Bichler, R.F., and Snowman, J. (1993). Psychology applied to teaching. Boston: Houghton Mifflin.
- 5) Normann Sprinthall and Richard, C. Sprinthall, Educational psychology: McGraw-Hill Publishing Company.
- 6) Chauhan. S.S., Advanced Educational psychology: Vikash Publishing House Pvt. Ltd.
- 7) Diane. E., Papalia and Sally wendkos olds. Human Development: McGraw-Hill.
- 8) Elizabeth, B., Hurlock, Child Development: McGraw-Hill Book Company.
- 9) Kundu, C.H. and Tutoo, D.N., Educational Psychology: Sterling Publication.
- 10) Aggarawal. J.C., Essentials of Educational Psychology: Vikash Publishing house Pvt. Ltd.
- 11) Clifford.C.Morgan. Richard. A. King, John R. Weisz, John R. Schopler, Introduction of Psychology.
- 12) Glietman, Alan, J., Fridland, Daniel Reisberg, Basic Psychology.

- | | | |
|-----------------------|--|----------------------------|
| Bengali Books: | 1) Sushil Ray | -Shiksha Manovidya. |
| | 2) Arun Ghosh | -Shiksha-Shrai Monobigyan. |
| | 3) Pramodbandhu Sengupta & Prasanta Sharma | -Shiksha Manobigyan. |

EDCATION –HONOURS

Part –II
PAPER –III
DEVELOPMENT OF EDUCATION IN INDIA

COURE OBJECTIVES:

1. To be acquainted with the salient features of education in India in Ancient & Medieval times.
2. To be acquainted with the development of education in British India.
3. To be acquainted with the development of education in Independent India, including significant points of selected Education.
4. To be acquainted with current issues and trends in Education.

GROUP –A

Education in Ancient, Medieval and British India.

MODULE – I

Approximate Lect. Hours.

1. Synoptic study of Brahmanic, Buddhist and Islamic Education in Ancient and Medieval India with respect to
 - a) Aims and Objectives (2)
 - b) Subject of study (2)
 - c) Methods of teaching including teacher – Pupil relationship. (2)
 - d) Evaluation (1)
 - e) Centre of Learning. (2)
 - f) Education of woman (1)

2. Brief outline of events relating education from 1757 to 1947
 - Missionaries activities (Srirampur Trio) (3)
 - Charter Act of 1813 (1)
 - Bengal Renaissance – Contribution of Rammohan Ray
H.L.V. Derozio. And Vidyasagar. (6)
 - Adams Report. (2)
 - Anglicist –Orientalist controversy – Macaulay’s Minute &
Bentinck’s resolution. (4)
 - Wood dispatch (Recommendations only) (2)

MODULE –II

Brief outline of

- Hunter Commission 1882-83 (Primary and Secondary Education) (3)
- Curzon Policy (Quantitative development of Primary education,
Quantitative and Qualitative development of Secondary education,

Qualitative development of Higher education).	(4)
▪ National Education Movement (cause and effect)	(2)
▪ Calcutta University Commission (1917-1919)	(2)
▪ Basic Education(concept & development)	(2)
▪ Sargent Plan	(1)

Total Lect. 42

GROUP –B

Development of Education after 1947.

MODULE-I

1. Constitutional provision for Education in India	(4)
2. Brief outline of the recommendations made by different Education Commission:	
▪ University Education Commission (1948-49) (Aims of Higher education & Rural University)	(4)
▪ Secondary Education Commission (1952-53) (Aims, Structure & Curriculum of Secondary education)	(5)
▪ Indian Education Commission (1964-66)	(7)

MODULE-II

3. National Policy on Education (1986).	(7)
4. Current issues in education:	
▪ Equalization of Education Opportunities.	(5)
▪ Programmes on Universal Elementary Education (DPEP &SSA)	(4)
▪ Non-formal education and alternative schooling, Education of women	(5)

Total Lect. 41

References:

1. Atlekar, A.S.	-Education in Ancient India.
2. Basu, A.N.	-Education in modern India.
3. Basu, A.N.	-Adam's Report.
4. Banerjee.J.P.	-Education in India-past, Present and future.
5. Dhar, Niranjana.	-Fundamentals of Social Education.
5. Keay, E.E.	-India Education in Ancient times.
6. Law, N.N.	-Promotion of Learning in India.
7. Mukherjee, S.N.	-Education in India, Today & Tomorrow.
8. Mukherjee, S.N.	-History of Education (Modern Period).
9. Nurulla, S., Naik, J.P.	-History of Education in India.
10. Purkait, B.R.	-History of Indian Education.

11. Rawat, P.L. -History of Indian Education.
12. Sreemali, K.L. -The Wardha Scheme.
13. Indian Education act. -1904
14. Govt. of India report of University Education Commission (1948-49).
15. Govt. of India report of Secondary Education Commission (1952-530).
16. Report of education Commission (1966) education and National development, Ministry of Education, New Delhi.
17. Govt. of India, Ministry of Human Resource – Development, National Policy on Education, 1986. New Delhi.
18. Govt. of India, Ministry of Human Resources Development, National Policy on Education, 1986, Programme of Action, New Delhi.
19. Govt. of India, Ministry of Human Resource Development, Policy of Action, 1992, New Delhi.
20. Dayal` Bhagwan – Development of Modern Indian education.
21. Education of Women key to progress, Ministry of education, New Delhi.
22. Kundu, C.L. -Adult Education.
23. Shah. A. & Ban, S. -National Education.
24. Singh, R.K. -Open University.
25. Srinivastava, K.N. -Education in Free India.

Bengali Books:

- 1) Jotiprasad Bandyapadhyay – Bharatiya Shikhan & Sampratik Samashya.
- 2) Sanyal, Mitra - Bharate Shikhar Itihas.
- 3) Gourdas Halder & Prasanta Sharma
- Adhunik Bharatiya Shikhar Bikash.
- 4) Jotiprasad Bandyapadhyay – Shikhar Itihas.
- 5) Ranjit Ghosh - Shikhar Itihas.

PAPER –IV
SOCIOLOGICAL FOUNDATION OF EDUCATION
AND
EDUCATIONAL ORGANIZATION & MANAGEMENT.

COURSE OBJECTIVES:

1. To understand the meaning of sociology and Education and realize its pertinence to education.
2. To become aware of the different social factors that influence education.
3. To become aware of social groups that influence education.
4. To become aware of the processes of social change and their impact on education.
5. To be acquainted with current social issues and their relationship with education.
6. To understand the concept of school organization.
7. To be acquainted with modern aspects of school organization.
8. To understand the difference between educational Management & Administration at different levels of education.

9. To understand the meaning, types and need for educational management.
10. To understand the meaning, types, need and strategies of educational planning.
- 11.

GROUP-A

Sociological Foundation of Education

MODULE-I

Lecture hours

- | | |
|---|------|
| 1. Sociological Foundation of Education-Sociology of education, Nature, Scope, Method of Study. | (5) |
| 2. Society and Education- | |
| (a)Society: its origin and factors and their influences on education (population, Location, religion, class, culture, technology, Economy). | |
| (b)Impact of different political systems on education (capitalism and socialism). | (10) |
| 3. Social groups and education- | |
| (a)Social groups (primary, Secondary and tertiary) | |
| (b)Socialization: the role of the family and school. | (6) |

MODULE-II

- | | |
|--|------------------|
| 4. Social change and Education- | |
| (a)Social change: Its definition and role of education | (2) |
| (b)Social change in India (Sankritization, Westernization, Modernization and Globalization). | (8) |
| 5. Education and Social Communications- | |
| Informal agencies of Social Communication. | (3) |
| 6. Education and Contemporary Social Issues: | |
| (a) Unemployment. | |
| (b) Poverty | |
| (c) National Disintegration | |
| (d) Population explosion. | (6) |
| | Total lecture 40 |

GROUP – B

Educational organization & Management

Lecture Hours

MODULE- I

- | | |
|--|-----|
| 1. Principles of Educational organization: Concept of School organization its principle. | (3) |
|--|-----|

2. Aspects of school Organization –
- (a) School Plant, building, Equipment, Sanitation. ,Play ground, Workshop, library, Computer Room. (6)
 - (b) Midday meal, School medical service, co- curricular activities. (3)
 - (c) Inclusive education. (1)
3. Educational Management and Administration (8)
- Difference between the two administrations at different levels (Primary, Secondary and Tertiary)
- Board of Secondary Education, Council of H.S Education, Council of Higher education.

MODULE- II

4. Concept of educational management- (7)
- Meaning, nature, need and scope, Role of Educational manager.
5. Types of Educational Management- (4)
- Autocratic, Democratic, Lassie- Fair supervision.
6. Educational Planning- (8)
- Meaning, need and significance of educational planning.
- Types and strategies of educational planning. Steps in Educational planning
- Institutional Planning.

Total lect.40

Reference:

- | | |
|----------------------|---|
| 1. Sharma, Y. | - Sociology of Education |
| 2. Brown, F.L. | -Educational Sociology |
| 3. Gisbert, P. | -Fundamentals of sociology. |
| 4. Chakraborty, J.C. | -Educational Sociology. |
| 5. Durkhiem | -Sociology of Education |
| 6. Bottroll | - Applied principles of Educational Sociolo |
| 7. Rao, M.s.A | - Education, Social stratification |
| 8. Dighburn, W.F | - Social exchange. |
| 9. Gaind | -Educational organizational. |
| 10. Chandana | - School Organization |
| 11. Kochar, S.K | - Secondary School Organization |
| 12. Aggarwal | - School Organization |

Bengal Books:

- 1) Bishnupada Panda- Shiksah-Shrai samajtantra
- 2) Ranjit Ghosh - Vidyalaya Paribesh & Padhyati
- 3) Arun Ghosh -Vidyalaya Sanghathan.

EDUCATION –HONOURS
Part –III

PAPER- V

PSYCHOLOGY OF ADJUSTMENT AND EDUCATIONAL GUIDENCE & COUNCELLING

COURSE OBJECTIVES

1. To understand the concept of adjustment and maladjustment.
2. To identify some commonly found problem behaviors along with the etiology and remedial measures.
3. To be aware of the role of parents and educational institution in promoting mental health.
4. To be aware about different coping strategies for successful stress – management.
5. To understand the concept of guidance and counseling.
6. To become aware about tools and techniques for conducting guidance and counseling services.

GROUP – A

Psychology of adjustment

MODULE – I

Lecture hours

1. Concept of adjustment- adjustment and adaptability, homeostasis, Psychodynamic concept of adjustment, socio-cultural concept: Criteria of good adjustment. (5)
2. Maladjustment- meaning of maladjustment-Conflict and frustration, Manifestation of maladjustment in Childhood and adolescence – a synoptic view of problem behaviours. (9)
3. General causes of mal adjustment- Biological and Environmental –role of parent and educational institution in promoting mental health. (6)

MODULE - II

4. Stress, stressors- personal and environmental stress, coping strategies and therapies –behaviour, cognitive and humanistic therapies (only concept). (9)
5. Multi axial classification of mental disorders- DSM IV Axis I and Axis II category – Brief outline of schizophrenia, anxiety disorder, depressive disorder, substance abuse, Personality disorder. (11)

Total lecture: 40

GROUP-B

Educational guidance and counseling.

Lecture hours

MODULE- I

1. Concept of guidance- meaning and nature of guidance-different forms of Guidance (group and individuals) Types of Guidance (educational, vocational) (8)
2. Counseling- meaning- types and techniques- directive, non directive, eclectic –individual and group counseling. (8)
3. Identification and guidance for special learners- gifted, slow learners, learner with learning disabilities, MR/ mentally challenged. (6)

MODULE-II

4. Basic data necessary for Guidance – pupil courses, vocation- tools and Techniques of collecting Information on pupils (Intelligence test, Personality test, Interest inventory, Aptitude test, CRC, Case study, ARC. Courses and occupations- Dissemination of information on courses and occupation prospectus, career (20)

Conference, pamphlets, newspaper, periodicals)

Total lect.42

References:

1. Guidance and counseling in college and university - S K.Kochar.
2. Guidance and counseling- Gibson – -Pearson publisher.
3. Sangathi Bidhane Nirdeshona & paramarshadan- - Dr. Subir Nag, Gargi Dutta.
4. Carson R C & Butcher, J.N - - Abnormal psychology and modern life.
5. Kisker G .W. - -The disorganized personality.
6. Coleman,J.c- -Psychology and Effective Behaviour.
7. Sarasan and Sarasan – -The problem of maladaptive Behaviour
8. Mohanty, G - -Abnormal Psychology.
9. Chauhan, S.S – - Principle and technique of Guidance.

PAPER –VI

EVALUATION IN EDUCATION

Course Objectives:

- 1) To develop understanding of the concepts of measurement and evaluation in education
- 2) To be acquaint with different types of measuring instruments and their uses.
- 3) To acquaint with the principles of test construction. To develop understanding of the concepts of validity and reliability and their importance in educational measurement.
- 4) To develop the ability to organize relevant educational data. To develop the ability to use various statistical measure in analysis and interpretation of educational data. To develop the ability to interpret test data.
- 5) To develop the ability to represent educational data through graphs. To develop skill in analyzing descriptive measures.

GROUP – A

MODULE-1

	Lecture Hours
1. Educational Measurement and Evaluation- Concept, Scope and Needs.	(5)
2. Tools and Techniques of Evaluation -	
a) Test: Types, use of Norm- Referenced test and Criterion- Referenced test, essay type and objective type tests.	
b) Observation- Concept and Use	
c) Inquiry - concept and use	
d) Cumulative Record Card – concept and Use	(15)
MODULE - II	
3. Scales of Measurement- Nominal, Ordinal, Interval, Ratio.	(3)
4. Criteria of Standardized test	
a) Validity b) reliability C) objectivity d) Usability e) Norms	(11)
5. Construction of a Standardized Achievement Test	(6)
<hr/>	
	Total Lect.40

GROUP -B

Statistics in Education

MODULE-I

	Lecture hours
1. Statistics- Use in Education	(1)
2. Organization and Graphical Representation of data – Pie Chart, Bar diagram, Histogram, Frequency polygon, Ogive.	(9)
3. Measures of Central tendency – Mean, Median, Mode- Calculation and application	(6)
4. Measures of Variability – Range, Quartile Deviation, Standard Deviation – Calculation and application	(7)

Module-II

5. Percentile and percentile rank- Calculation and application, including graphical representation	(6)
6. Characteristics of Normal curve.	(2)
7. Skewness and Kurtosis – Concept.	(2)
8. Concept of Z – Score _ Calculation and use.	(6)

9. Linear Correlation – Concept and Use – Co-efficient of Linear Correlation: Product – moment method and Rank difference Method – calculation

(8)

Total lect. 47

Reference:

- | | |
|----------------------------------|---|
| 1. Anastasi, A. | Psychological testing. |
| 2. Freeman, F.S. | Theory and practice of Psychological testing. |
| 3. Thorndike, R.L., Hegen, S. | Measurement & Evaluation in psychology and Education. |
| 4. Singh, A.K. | Tests, Measurement and research Methods in Behavioural Science. |
| 5. Garret, E. | Statistics in psychology and Education. |
| 6. Mongal, S.K. | Statistics in psychology and Education. |
| 7. Giulford, J.P. & Fruchter, G. | Fundamental Statistics in Psychology & education. |
| 8. Medhi. | Statistical Methods and Introductory test. |

Bengali Books: 1) Sishil Ray -Mullayan: Niti & Kaushal.

PAPER –VII

EDUCATIONAL TECHNOLOGY AND CURRICULUM

COURSE OBJECTIVES:

1. To enable the student to understand the concept of educational technology.
2. To expose the students to the basic developments in educational technology.
3. To Acquaints students with different instructional techniques.
4. To develop the ability to analyze classroom teaching – learning and the ability to observe classroom behaviour and group dynamics.
5. To understand the meaning and scope of curriculum.
6. To understand the basis of curriculum construction, evaluation and innovation.

GROUP –B

MODULE - I

Educational Technology

Approximate lect. Hours.

1. Concepts need and scope of educational technology. (2)
2. Systems approach to education: Definition of systems, need for systems approach, classification of systems & components of a System. (6)
3. Computer and its role in education. (2)
4. Use of media in education: Audio (Radio & Tape), Visual (Projector). Audio-visual (T.V. & CCTV). (4)
5. Models of teaching: Nature, Concepts and different families of Teaching Models, advantages of the use of Models of Teaching. (6)

MODULE -II

6. Communication and educational technology: Components of Communication process, role of communication in effective teaching-learning process, Factors affecting classroom communication. (7)
7. Instructional techniques: Mass instructional techniques (basic concepts only), Personalized techniques – Programmed learning, Mastery Learning, Microteaching (basic concepts). (7)
8. Distance education: Concepts, types and usefulness –Application of technology in Distance education. (6)

Total lect.40

GROUP-B

Curriculum Studies.

MODULE -I

Approximate lect.Hours.

1. Concept of curriculum: Explicit Curriculum, Hidden Curriculum. (3)
Nature of Curriculum (2)
Bases of Curriculum: Philosophical Sociological & Psychological. (3)
2. Systems Approach to Curriculum. (2)
3. Objectives of curriculum: Need to form objectives of curriculum. Sources of objectives of the curriculum: society, discipline, needs of students. (5)
4. Bloom's Taxonomy of educational objectives: an overview (Cognitive & Affective domains) with examples. (5)

MODULE -II

5. Determinants of content selection: culture based, Knowledge based, Need based. (6)
6. Curriculum transaction: Bruner's Theory of Instruction and learning. (6)
7. Curriculum evaluation: meaning and utility, Sources and means of curriculum evaluation. Formative and Summative evaluation. (8)

References:

1. Kumari, Sarita & Srivastava, D.S., "Curriculum and Instruction", Isha books, Delhi, 2005.
2. Olivia, P.F. Developing the curriculum, Harper Collins, 1992.
3. Sen, M.K., Shiksha Prajuktibibnan, soma Books Agency, 2006.
4. Taylor, P.H., & Richards. C.M., An introduction to curriculum studies.
5. Kelly, A.K. The curriculum, Theory and Practice.
6. Hooper, Richard, "Curriculum Design".
7. Lawton, D., Gordon P., Ing. M., Gibby, B., Pring, R., t. "Theory and Practice of Curriculum Studies".
8. Sampath. Pannerselvan, Santhanam-Introduction to educational technology.
9. Rao, Usha -Educational technology.
10. Anand Rao, B. ravishankar, S. -Reading in educational technology.
11. Mohanty, J. -Educational technology.
12. Bharna, R.D. -An Introductory Technology.
13. Vashist, S.R.(ed) Perspectives in Curriculum Development Vol.1-5
14. Khan, M.I.& Nigam, B.K. Evaluation and research in curriculum construction.
15. Lawton, D., Gordon, P., Ing, M., Gibby, B., Pring, R. Moore, T. -Theory and practice of curriculum studies.
16. Kelly, A.V. -The curriculum, Theory and Practice.
17. Taylor, P.H. & Richards, C.M. -An introduction to curriculum studies.

PAPER-VIII

COMPARATIVE EDUCATION AND PRACTICAL

COURSE OBJECTIVES:

1. To analyze and compare Indian educational system with abroad.
2. To be acquainted with the process of collecting data.
3. To apply relevant statistical techniques to display and analyze data.
4. To acquire the skills of observation and inference in relation to some selected constructs in educational psychology.

GROUP-A

Comparative Education.

Module – I

Approximate Lect. Hours.

Any one country from UK. USA. China.

1. Concept, meaning, scope of Comparative Education. (8)
- 2) Various issues of the Indian educational system with special reference to school education in comparison with one of the above mentioned countries:
 - a) Structure of education (6)
 - b) Administration (6)

Module – II

- Various issues of the Indian educational system with special reference to school education in comparison with one of the above mentioned countries.
- a) Curriculum (5)
 - b) Examination (5)
 - c) Teacher education (4)
 - d) Education for all (4)
 - e) Distance education and open learning (3)

Total lect: 41

GROUP-B

Practical

- | | Lecture hours |
|---|---------------|
| A. Statistics Practical | |
| B. Pedagogy practical. | |
| A. statistics: The students are expected to collect relevant data from their colleges or neighborhood (minimum sample size must be 50) for the following: | |
| 1. Determination of central tendencies and standard deviation. | (4) |
| 2. Graphical representation of data: Bar chart, frequency polygon, Cumulative Frequency curve and location of median and quartile therein. | (6) |
| 3. determination of types of association between two sets of data by drawing scatter diagram (linear relations only). | (3) |
|
B. Pedagogy. | |
| 1. Determination of memory span | (4) |
| 2. Index of complete learning / capacity of memorization | (4) |
| 3. Comparison of recall and recognition as modes of measuring retention | (4) |
-

Syllabus of Three Year Degree Course in EDUCATION (General)

Part I FULL MARKS-100

Paper 1 Full marks -100
Principles of Education

Module I

1. Concept, scope and functions of education:
Education as a social process. Education and Social Changes.
2. Aims of education: Individualistic and socialistic aims of education. Education for emotional, social and cultural adjustment. education for productivity and vocation.
3. Freedom and Discipline: Concept and need for free discipline. Self discipline and student self government.

Module II

4. Factors of education:
 - a) The Child - innate endowment and environment
 - b) The Teacher - qualities and responsibilities.

- c) The Curriculum - concept, principles of curriculum construction. Co- curricular activities- meaning ,values and forms.
- d) The educational institutions – Formal, informal, non formal. Their interrelations.

Module III

5. Agencies of education:

- a) Home,
- b) School,
- c) Socio-cultural and Religious organizations,
- d) State,
- e) Mass- media

Module IV

- 6. Child - centricism in education: Its significance.
- 7. Play and play- way in education: Kindergarten, Montessori, Basic education and Project.

References

- 1. J.C. Chakraborty- Modern Education: Its Aims and principles
- 2. Archana Banerjee- Principles of education
- 3. J.C. Agarwal- Theory and Principles of education
- 4. J.C. Agarwal- Philosophy and social basis of education.
- 5. B.R. Purkait- Principles and practices of education

PART II

Paper II

Educational Psychology Full Marks 100

Module I

- 1. Relation between Psychology and education. Nature and scope of Educational Psychology.
- 2. Development of the Child: Infancy, Childhood, Adolescence-Physical, Social, Emotional and Cognitive development.

Module II

- 3. Personality: Concept, traits and theories
- 4. Emotion: Meaning and characteristics, places of emotion in education.
- 5. Habit: Its importance and definition. Habit formation. Uses and abuses of habit formation. Educational values of habit.

Module III

- 6. Intelligence: Concept and measurement. Classification of intelligence tests. Examples of each type of test. Uses of intelligence tests.
- 7. Attention and Interest: Nature and conditions of attention, their educational implications.

Module IV

8. Learning: Its nature, relation to motivation and maturation. Theories of learning: trial and error including laws of learning, conditioned response (Classical and Operant) and Gestalt theory.
9. Remembering and forgetting: Process involved in memory. Marks of good memory. Forgetting - its meaning and causes.

References:

1. C.F. Skinner- Educational Psychology
2. J.P. Guilford- General Psychology
3. H.R. Bhatia- Textbook of educational psychology
4. S.S. Chauhan- Advance educational psychology
5. S. Mangal- Educational psychology.

Paper III

Development of Education in Modern India

Full Marks 100

Module I

1. A synoptic view of ancient and medieval history of education in India
2. Advent of missionaries: Serampore Missionaries activities in education
3. Official introduction of English education by Lord Bentinck.
4. Adam's Report on indigenous system of education.
5. The Despatch of 1854.

Module II

6. Contributions of Raja Rammohan and Vidyasagar in social and educational reforms
7. The First Education Commission (W. Hunter.) 1882
8. Growth of national consciousness: Conflict with Lord Curzon (1902 to 1905)
9. National Education Movement- Contributions of Vivekananda, Rabindranath and Aurobindo.

Module III

10. A synoptic view of the suggestions for educational reforms by the Sadler Commission, Wood-Abbot, Wardha Scheme.
11. The Sargent Plan 1944
12. The Radhakrishnan Commission 1948-1949

13. A synoptic study of changes in school system, primary and secondary (structure and curriculum only) after independence-Mudaliar Commission's (1952-1953) report and Kothari Commission's report (1964-1966)

Module IV

14. Education of Women since independence
15. Educational policy 1968- A brief overview
16. Educational policy 1986- A brief overview.

References:

1. J.P. Banerjee- Education in India: Past Present and Future
2. B.R. Purkait- Milestones of modern Indian education
3. S.P. Chauhan- History of Indian education
4. S.Nurulla and J.P. Naik- History of education in India.

PART- III

PAPER IV

Full Marks 100

Evaluation and Guidance in education

Module I

1. Concept of evaluation
2. Need and scope of evaluation in education : Evaluation of student achievement, evaluation of curriculum, evaluation of teaching, evaluation of institute
3. Evaluation of student progress: Examination and evaluation. Tools of evaluation: Examination-essay type and objective type, criterion-referenced test and standardized test, Cumulative Record Card(CRC).

Module II

4. How to make a good test: Specification of objectives, item selection.
5. Measurement in education: Tabulation of educational data, measures of central tendency, measures of variability, (S.D only), Graphical representation (frequency polygon, histogram and ogive). Idea of linear correlation.

Module III

6. Guidance: Concept, need and scope and types
7. Basic data necessary for guidance (data about students, courses and vocations)
8. Counseling: Meaning and types of counseling for adjustment problem

Module IV

9. Meaning of adjustment.
10. Causes of maladjustment: role of parents, teachers, peers and educational institutions in the development of maladjustment.

References:

1. A. Anastasi- Psychological Testing
2. F.S. Freeman – Theory and practice of psychological testing
3. E.L. Thorndike and Hagen- Measurement and evaluation in education
4. J.N. Fuster-Psychological Counseling in India
5. H.W. Bernard and D. W. Fulner- Principles of guidance- a basic text.
6. P. Milner- Counselling in education.

Proposed Question Patterns

A For honours in Education.

Each half of each paper consists of two modules of 25 marks each.

The question pattern for each module is as follows

1. One question of 15 marks to be answered from **two** alternatives = 15 marks
2. Two questions of 5 marks to be answered from **three** alternative = 10

Total -25

B. For General Course in Education

Each paper consists of four modules of 25 marks . The question pattern for each module is as follows

1. One question of 10 marks to be answered from **two** alternatives= 10 marks
2. Three questions of 5 marks to be answered from **five** alternatives =15 marks

Total- 25

UNIVERSITY OF CALCUTTA



NISHAT ALAM
Secretary,
Councils for Undergraduate Studies,
University of Calcutta.

SENATE HOUSE

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Phone : 2257-3376, 2241-0071-74
e-mail: u.g.councilsc.u@gmail.com
Website: www.caluniv.ac.in

Ref. No. CUS/151/17

Dated the 25th May, 2017

To
The Principals
of all the Undergraduate Colleges
Affiliated to the University of Calcutta.

Sir/Madam,

The undersigned is directed to forward you the University Notification No. CSR/24/17, dt. 22.05.2017 containing new revised syllabus for three-year B.A. (*Honours, General, Compulsory, Alternative & Communicative*) Course of Studies in **English**.

The new revised syllabus will come into effect from the academic session 2017-18.

The said notification along with detail syllabus is available in the Calcutta University website.

Thanking you,

Yours faithfully,

Encl.: C.U. Notification No. CSR/24/17, dt. 22.05.2017

(NISHAT ALAM)
Secretary

Nishat Alam
25/5/17



UNIVERSITY OF CALCUTTA

Notification No. CSR/ 24 /17

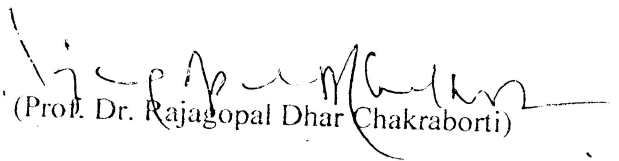
It is notified for information of all concerned that in terms of the provisions of Section 54 of the Calcutta University Act, 1979, (as amended), and, in exercise of his powers under 9(6) of the said Act, the Vice-Chancellor has, by an order dated 28.04.2017 approved the following syllabi

- (i) **New Revised Syllabus of B.A. Honours in English,**
- (ii) **New Revised Syllabus of B.A. General English,**
- (iii) **B.A. and B.Sc. Compulsory English,**
- (iv) **B.A., B.Sc. and B.Com. Alternative English, and,**
- (v) **B.Com. Communicative English,**

under this University, as laid down in the accompanying pamphlet.

The above shall be effective from the academic session 2017-2018 and onwards.

SENATE HOUSE
KOLKATA-700073
The 22nd May, 2017


(Prof. Dr. Rajagopal Dhar Chakraborti)

Registrar

UNIVERSITY OF CALCUTTA
SYLLABUS OF ENGLISH (HONS)
(with effect from 2017-2018)

Word-limit for the answers for the honours papers

Full marks of the questions →	16	7	12	8	14	4	2	9	5	18	10	15	35	20
Word-limit of the answers →	600	250	450	300	500	150	100	350	200	700	400	550	1000	800

PART I

PAPER - I

HISTORY OF ENGLISH LITERATURE: 60 MARKS

Group A: OE period to 1700

Section 1: Old English and Middle English

Section 2: Elizabethan and Jacobean

Section 3: Civil War and Restoration

One question of 16 marks out of three (one from each section)

Two questions of 7 marks each out of six (two from each section)

$$16 \times 1 = 16$$

$$\underline{7 \times 2 = 14}$$

$$\underline{\text{Total 30}}$$

Group B: 1701 to 2000

Section 1: Augustan and Pre-Romantics

Section 2: Romantic and Victorian

Section 3: Modern and Post Modern

One question of 16 marks out of three (one from each section)

Two questions of 7 marks each out of six (two from each section)

$$16 \times 1 = 16$$

$$\underline{7 \times 2 = 14}$$

$$\underline{\text{Total 30}}$$

Recommended Reading:

Andrew Sanders: *The Short Oxford History of English Literature*

Edward Albert: *History of English Literature*

Michael Alexander: *A History of English Literature*

G.M. Trevelyan: *English Social History*

Bibhash Choudhury: *English Social and Cultural History*

PHILOLOGY: 40 MARKS

Group A: Latin, Greek, Scandinavian & French Influence
One question of 12 marks out of two

Group B: Word Notes
Four word-notes of 2 marks each out of eight

$$\begin{array}{r} 12 \times 1 = 12 \\ \underline{2 \times 4 = 8} \\ \text{Total } 20 \end{array}$$

Group C: Word-formation Processes, Americanism, Consonant Shift, Makers of English Language (Shakespeare, Milton & the Bible)
One question of 12 marks out of two
One question of 8 marks out of three

$$\begin{array}{r} 12 \times 1 = 12 \\ \underline{8 \times 1 = 8} \\ \text{Total } 20 \end{array}$$

Recommended Reading:

Otto Jespersen: *Growth and Structure of the English Language* (Chapters 4, 5, 6, 8, 10)
C.L. Wren: *The English Language* (Chapters 6 & 7)

Further Reading:

A.C. Baugh: *A History of English Language*
C.L. Barber: *The Story of Language*

PAPER - II

POETRY FROM ROMANTIC REVIVAL TO MODERN AGE

GROUP A: William Blake: *The Tyger & The Lamb*, William Wordsworth: *Tintern Abbey*, ST Coleridge: *Kubla Khan*, PB Shelley: *Ode to the West Wind & To a Skylark*, John Keats: *Ode to a Nightingale & To Autumn*
Two questions of 16 marks out of five (one from each poet)
Explanation of one passage of 8 marks out of two

GROUP B: Rhetoric: 10 marks – One question out of two

$$\begin{array}{r} 16 \times 2 = 32 \\ 8 \times 1 = 8 \\ \underline{10 \times 1 = 10} \\ \text{Total } 50 \end{array}$$

GROUP C: Lord Tennyson: *Ulysses*, Robert Browning: *My Last Duchess*, Matthew Arnold: *Dover Beach*, Hopkins: *Pied Beauty*
One question of 16 marks out of two

GROUP D: WB Yeats: *An Acre of Grass*, Dylan Thomas: *In my craft or sullen art*, TS Eliot: *Preludes*, Wilfred Owen: *Strange Meeting*
One question of 16 marks out of two
Explanation of one passage of 8 marks out of two (one each from Group C and Group D)

GROUP E: Prosody: 10 marks – One question out of two

$$\begin{array}{r}
 16 \times 2 = 32 \\
 8 \times 1 = 8 \\
 \hline
 10 \times 1 = 10 \\
 \hline
 \text{Total } 50
 \end{array}$$

PART - II

PAPER – III

DRAMA

GROUP A: Marlowe – *Tamburlaine* Part I, Shakespeare – *A Midsummer Night’s Dream*

One question of 16 marks out of two from each of the two dramas

Explanation of one passage of 8 marks out of two (one from each drama)

GROUP B: Literary terms on drama

Two questions of 5 marks each out of four

$$\begin{array}{r}
 16 \times 2 = 32 \\
 8 \times 1 = 8 \\
 \hline
 5 \times 2 = 10 \\
 \hline
 \text{Total } 50
 \end{array}$$

GROUP C: Sheridan – *The Rivals*, Shakespeare - *Macbeth*

One question of 16 marks out of two from each of the two dramas

Explanation of one passage of 9 marks out of two from each of the two dramas

$$\begin{array}{r}
 16 \times 2 = 32 \\
 \hline
 9 \times 2 = 18 \\
 \hline
 \text{Total } 50
 \end{array}$$

PAPER – IV

NOVEL, ESSAYS AND SHORT STORIES

GROUP A: Jane Austen: *Pride and Prejudice* **OR** George Eliot: *Silas Marner*

One question of 16 marks out of two (two questions will be set from each of the two novels)

GROUP B: Essays: Francis Bacon, *Of Studies*, Charles Lamb, *Dream Children: A Reverie*, George Orwell, *Shooting an Elephant*

One question of 16 marks out of two

Explanation of one passage of 8 marks out of two

GROUP C: Literary Terms on fiction

Two questions of 5 marks each out of four

$$\begin{array}{r}
 16 \times 2 = 32 \\
 8 \times 1 = 8 \\
 \hline
 5 \times 2 = 10 \\
 \hline
 \text{Total } 50
 \end{array}$$

GROUP D: Stories - James Joyce: *Araby*, Joseph Conrad: *The Lagoon*, Katherine Mansfield: *The Fly*

Two questions of 16 marks out of three (one from each story)

GROUP E: Substance Writing and Critical Note: 10 + 8

$$\begin{array}{r}
 16 \times 2 = 32 \\
 18 \times 1 = 18 \\
 \hline
 \text{Total } 50
 \end{array}$$

PART - III

PAPER – V

POETRY FROM ELIZABETHAN AGE TO NEO-CLASSICAL PERIOD

GROUP A: Shakespeare's sonnets No. 18 (*Shall I compare thee to a summer's day*) & No. 130 (*My mistress' eyes are nothing like the sun*)

One question of 18 marks out of two

GROUP B: John Donne: *The Good Morrow*, Andrew Marvell: *To His Coy Mistress*

One question of 18 marks out of two

GROUP C: John Milton, *Paradise Lost*, Book I

One question of 18 marks out of two

GROUP D: Alexander Pope, *The Rape of the Lock* (First 3 Cantos)

One question of 18 marks out of two

GROUP E: Explanation of two passages of 9 marks each out of four (one from each group)

GROUP F: Literary Terms on poetry: Two questions of 5 marks each out of four

$$\begin{array}{r}
 18 \times 4 = 72 \\
 9 \times 2 = 18 \\
 5 \times 2 = 10 \\
 \hline
 \text{Total } 100
 \end{array}$$

PAPER – VI

NOVEL, ESSAY & WRITING

GROUP A: Charles Dickens – *Great Expectations*

One question of 20 marks out of two

Or

GROUP A: Thomas Hardy – *The Mayor of Casterbridge*

One question of 20 marks out of two

GROUP B: Miscellaneous Writing Skills (Report Writing/Film Reviews/ Book Reviews/Dialogue)

One question of 20 marks out of two

GROUP C: Essay

One question of 40 marks out of five

GROUP D: Summary and critical note on an unseen passage

One question of 20 marks out of two (one prose and one poem)
(12 marks for summary and 8 marks for critical note)

$$20 \times 1 = 20$$

20x1 = 20
40x1 = 40
20x1 = 20
Total 100

PAPER – VII

DRAMA AND LITERARY TYPES

John Osborne: *Look Back in Anger* **OR** Arnold Wesker: *Roots*, George Bernard Shaw: *Arms and the Man*, J.M. Synge: *Riders to the Sea*

One question of 20 marks out of two from each of the three dramas

Literary Types - Tragedy, Novel, Epic, Comedy

Two questions of 20 marks out of four (one from each type)*

*Tragedy: Tragic Hero, Catharsis, Plot and Character, Chorus

*Novel: Psychological Novel, Picaresque Novel, Epistolary Novel, Points of View in Narrative

*Epic: Primary and Secondary Epic, Mock Epic, Epic Style, Epic Convention

*Comedy: Romantic Comedy, Comedy of Humours, Comedy of Manners, High Comedy and Low Comedy

20x3 = 60
20x2 = 40
Total 100

PAPER – VIII (OPTIONAL PAPER)

GROUP A: Indian Writing in English (including Indian writing in English translation)

Novel:

Mulkraj Anand: *Coolie*

Anita Desai: *Voices in the City*

Rabindranath Tagore: *The Home and the World*

Amitava Ghosh: *The Shadow Lines*

Two questions of 20 marks each out of four (one from each novel)

Short Story:

Munshi Prem Chand: *The Shroud*

Ruskin Bond: *The Eyes are not Here*

Manik Bandyopadhyay: *Primeval*

R.K. Narayan: *Cat Within*

One question of 20 marks out of three

Poetry:

Sarojini Naidu: *Palanquin Bearers*

Nissim Ezekiel: *Enterprise*

Kamala Das: *An Introduction*

Mahadevi Verma: *This is the Lamp of the Temple*

Agyeya: *Hiroshima*

One question of 20 marks out of three

Drama:

Mahesh Dattani: *Bravely Fought the Queen*

(One question of 20 marks out of two)

Or

Habib Tanvir: *Charandas Chor*
(One question of 20 marks out of two)

20x5 = 100

GROUP B: American Literature

Novel:

Mark Twain: *Huckleberry Finn*
Ernest Hemingway: *The Old Man and the Sea*
F. Scott Fitzgerald: *The Great Gatsby*
Toni Morrison: *The Bluest Eye*
Two questions of 20 marks each out of four (one from each novel)

Short Story:

Edgar Allan Poe: *The Fall of the House of the Usher*
O' Henry: *The Cop and the Anthem*
John Steinbeck: *The Chrysanthemums*
Kate Chopin: *The Story of an Hour*
One question of 20 marks out of three

Poetry:

Robert Frost: *After Apple Picking*
Langston Hughes: *Harlem to be Answered*
Sylvia Plath: *Daddy*
Muriel Rukeyser: *The Poem as Mask*
Walt Whitman: *Good-bye My Fancy!*
One question of 20 marks out of three

Drama:

Tennessee Williams: *The Glass Menagerie*
(One question of 20 marks out of two)
Or
Arthur Miller: *A View from the Bridge*
(One question of 20 marks out of two)

20x5 = 100

GROUP C: Post-Colonial Literature in English

Novel:

Margaret Atwood: *Surfacing*
Chinua Achebe: *Things Fall Apart*
Bapsi Sidhwa: *Ice-Candy Man*
Salman Rushdie: *Midnight's Children*
Two questions of 20 marks each out of four (one from each novel)

Short Story: (from *The Arnold Anthology of Post-Colonial Literatures in English*, ed. John Thieme)

Henry Lawson: *The Drover's Wife*
Alice Munroe: *The Photographer*
Nadine Gordimer: *Six Feet of the Country*
V.S. Naipaul: *Man-man*
One question of 20 marks out of three

Poetry: (from *An Anthology of Commonwealth Poetry*, Macmillan)

Judith Wright: *Clock and Heart*
Wole Soyinka: *Telephonic Conversation*
Derek Walcott: *A Far Cry from Africa*
P.K. Page: *First Neighbours*
Kishwar Naheed: *I am Not that Woman*
One question of 20 marks out of three

Drama:

Ngugi Wa Thiong and M.G. Mugo: *The Trial of Dedan Kimathi* (Worldview)
One question of 20 marks out of two

OR

Sunil Kuruvilla: *Night Out* (Playscripts, Inc., New York)
One question of 20 marks out of two

20x5 = 100

LIST OF LITERARY TERMS

Poetry

1. Bathos
2. Blank Verse
3. Carpe Diem
4. Heroic Couplet
5. Epic
6. Imagery
7. Mock Epic
8. Ode (Horatian & Pindaric)
9. Pastoral Elegy
10. Refrain
11. Rhyme
12. Satire
13. Symbol
14. Caesura
15. Conceit.

Fiction

1. Bildungsroman
2. Character (Flat & Round)
3. Folktale
4. Gothic Novel
5. Irony
6. Epistolary Novel
7. Parable

8. Picaresque Novel
9. Plot
10. Point Of View
11. Stream-Of-Consciousness
12. Short Story
13. Theme
14. Foil
15. Setting

Drama

1. Anagnorisis
2. Aside
3. Antagonist
4. Catastrophe
5. Catharsis
6. Chorus
7. Conflict
8. Climax
9. Comic Relief
10. Denouement
11. Dramatic Irony
12. Hamartia
13. Hubris
14. Soliloquy
15. Three Unities

UNIVERSITY OF CALCUTTA
SYLLABUS OF ENGLISH (GENERAL)
(with effect from 2017-2018)

PAPER – I

POETRY

Group - A

From Palgrave's Golden Treasury

William Shakespeare: Sonnet No. 18 (*Shall I compare thee to a summer's day*)

John Milton: *On His Blindness*

William Wordsworth: *Strange fits of passion*

P.B. Shelley: *To a Skylark*

John Keats: *To Autumn*

2 questions of 15 marks out of 5

5 questions of 2 marks each out of 10

UNSEEN

Identifying Figures of Speech: 10 marks

(Simile, Metaphor, Metonymy, Synecdoche, Personification, Apostrophe, Alliteration, Transferred Epithet, Oxymoron, Epigram, Antithesis & Irony)

15 x 2 = 30

2 x 5 = 10

10 x 1 = 10

Total = 50

Group - B

From Palgrave's Golden Treasury

Lord Tennyson: *Ulysses*

Robert Browning: *The Last Ride Together*

W.B. Yeats: *The Lost Child*

Wilfred Owen: *Futility*

W.H. Auden: *Look Stranger*

2 questions of 15 marks out of 5

5 questions of 2 marks each out of 10

UNSEEN

Punctuation: 10 marks

15 x 2 = 30

2 x 5 = 10

10 x 1 = 10

Total = 50

PAPER – II

Group - A

FICTION

Novel

Charles Dickens: *Great Expectations*

One question of 15 marks out of two

Or

Thomas Hardy: *The Mayor of Casterbridge*

One question of 15 marks out of two

Short Stories

From *Modern Prose*, ed. Michael Thorpe

James Joyce: *Araby*

Joseph Conrad: *The Lagoon*

Katherine Mansfield: *The Fly*

One question of 15 marks out of three (one from each story)

One passage for explanation out of two of 8 marks

Unseen

Writing précis of a passage and adding a title (10 + 2 = 12)

$$15 \times 1 = 15$$

$$15 \times 1 = 15$$

$$8 \times 1 = 8$$

$$\underline{12 \times 1 = 12}$$

$$\underline{\text{Total} = 50}$$

Group - B

ESSAY

Essays

From *Eight Essayists* ed. A.S. Cairncross & *Modern Prose* ed. Michael Thorpe

Charles Lamb: *Dream Children: A Reverie*

Robert Lynd: *Sea-side*

George Orwell: *Shooting an Elephant*

Two questions of 15 marks each out of three (one from each essay)

Unseen

One essay of 20 marks

$$15 \times 2 = 30$$

$$\underline{20 \times 1 = 20}$$

$$\underline{\text{Total} = 50}$$

PAPER – III

Group - A

DRAMA

William Shakespeare: *Julius Caesar* OR *A Midsummer Night's Dream*

One question of 20 marks out of two

One explanation of 10 marks out of two

Four short questions of 2 marks out of six

Three Literary Terms (related to drama) of 4 marks out of five

$$20 \times 1 = 20$$

$$10 \times 1 = 10$$

$$2 \times 4 = 8$$

$$\underline{4 \times 3 = 12}$$

$$\underline{\text{Total} = 50}$$

Group - B

DRAMA

George Bernard Shaw: *Arms and the Man* OR *Pygmalion*

One question of 20 marks out of two

One explanation of 10 marks out of two

Four short questions of 2 marks out of six

Proof Reading: 12 marks (The original text should be printed in the question paper along with the proof copy)

$$20 \times 1 = 20$$

$$10 \times 1 = 10$$

$$2 \times 4 = 8$$

$$\underline{12 \times 1 = 12}$$

$$\underline{\text{Total} = 50}$$

PAPER – IV

Group - A

Short Stories

Bhabani Bhattacharya: *A Moment of Eternity*

Mulk Raj Anand: *Duty*

R.K. Narayan: *Cat Within*

Rabindranath Tagore: *The Home-coming*

Two questions of 20 marks out of four (one from each story)

One explanation of 10 marks out of two

$$20 \times 2 = 40$$

$$\underline{10 \times 1 = 10}$$

$$\underline{\text{Total} = 50}$$

Group - B

Poems

Toru Dutt: *Sita*

Kamala Das: *An Introduction*

A.K. Ramanujam: *A River*

Nissim Ezekiel: *Goodbye Party for Miss Puspa T.S.*

One question of 20 marks out of three

One explanation of 10 marks out of two

Unseen

Dialogue Writing – 10 marks

Substance writing of a poem – 10 marks

$$20 \times 1 = 20$$

$$10 \times 1 = 10$$

$$10 \times 1 = 10$$

$$\underline{10 \times 1 = 10}$$

$$\underline{\text{Total} = 50}$$

UNIVERSITY OF CALCUTTA
SYLLABUS OF COMPULSORY ENGLISH
(for BA and BSc Students)
(with effect from 2017-2018)

SEEN

Short Story

R.K. Narayan: *Out of Business*
Stephen Leacock: *My Financial Career*

Essay

George Bernard Shaw: *Spoken English and Broken English*

Poems

William Shakespeare: *The Seven Ages of Man*
Rabindranath Tagore: *Where the Mind is Without Fear*

(from the book *University English Selections: Three Year Degree Course*,
University of Calcutta, 2007)

2 questions of 5 marks each out of 5 (one from each piece): $5 \times 2 = 10$
5 questions of 2 marks each out of 10 (two from each piece): $2 \times 5 = 10$
5 questions of 1 mark each out of 10 (two from each piece): $1 \times 5 = 5$
Total – 25

UNSEEN

Official Letter / Personal Letter / CV Writing / Précis Writing: one question of 10 marks out of four: $10 \times 1 = 10$
Comprehension Test: two questions of 5 marks each: $5 \times 2 = 10$
Grammar & vocabulary Test (from the comprehension passage): 5 questions of 1 mark each: $1 \times 5 = 5$
Total – 25

UNIVERSITY OF CALCUTTA
SYLLABUS OF COMMUNICATIVE ENGLISH
(for BCom Students)
(with effect from 2017-2018)

Unit 1: Writing Skill: Common Grammatical Errors, Changing Sentences as per Given Instructions, Writing CVs, Official Correspondence, Circular, Agenda, Notice, Press Release, Report Writing about the proceedings of a seminar, Preparation of Official Reports.

Unit 2: Business Communication: Letter to Vendor, Quotation, Query for Details of an Item, Reminder Letter, Newsletter, Newspaper Reports, Advertisements.

Correction: 1 x 5 = 5

Changing Sentences as per Given Instructions: 1 x 5 = 5

Business Letter (one out of two): 10 x 1 = 10

Writing CV (one out of two): 10 x 1 = 10

Circular / Agenda / Notice / Press Release (one out of two): 10 x 1 = 10

Letter to Vendor / Quotation / Newspaper Reports / Advertisement (one out of two): 10 x 1 = 10

UNIVERSITY OF CALCUTTA
SYLLABUS OF ALTERNATIVE ENGLISH
(for BA, BSc & BCom Students)
(with effect from 2017-2018)

SEEN

Short Story

Katherine Mansfield: *The Fly*
R.K. Narayan: *The Martyr's Corner*

Essay

J. Bronowski: Science and War

Poems

William Wordsworth: *To the Skylark*
G.M. Hopkins: *Pied Beauty*

(from the book *University Selections: Three Year Degree Course: Alternative English*
University of Calcutta, 1999)

2 questions of 5 marks each out of 5 (one from each piece): $5 \times 2 = 10$
5 questions of 2 marks each out of 10 (two from each piece): $2 \times 5 = 10$
5 questions of 1 mark each out of 10 (two from each piece): $1 \times 5 = 5$
Total – 25

UNSEEN

Official Letter / Personal Letter / CV Writing / Précis Writing: one question of 10 marks out of four: $10 \times 1 = 10$
Comprehension Test: two questions of 5 marks each: $5 \times 2 = 10$
Grammar & vocabulary Test (from the comprehension passage): 5 questions of 1 mark each: $1 \times 5 = 5$
Total – 25

UNIVERSITY OF CALCUTTA

SYLLABI

F

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THREE-YEAR HONOURS & GENERAL DEGREE COURSES OF STUDIES



HISTORY

2010

B.A. HONOURS COURSE OF STUDIES IN HISTORY

Division of papers for the Undergraduate Honours course in History

Part I

1. History of India from the earliest Times to 600 CE [Existing Paper I]
2. History of India from C 600 to C1500 [Existing Paper II]

Part II

3. Transformation of Europe (15th – 17th Centuries) [Existing Paper III]
4. History of India from C1500 to C1800 [Existing Paper V]

Part III

5. (Group A)History of East Asia from 1839 to 1950
OR

(Group B)Aspects of Antiquity [Existing Paper IV]

6. History of India from C1800 to 1964 [Existing Paper II]
7. History of Europe from 1789 to 1919 [Existing Paper VII]
8. World Politics in the 20th Century from 1919 to C2000 [Existing Paper VIII]

PART-I

PAPER-I

History of India from the earliest Times to 600 CE

UNIT-I (50 marks; 40 lectures)

Module-I

Sources of Early Indian History

- 1.1 Classification and importance of both Literary and Archaeological sources
- 1.2 Understanding the nature of the sources for each period
- 1.3 History and Itihasa

Module-II

Changing Relationship between people and landscape, from hunter-gatherers to post Harappan cultures in the Indian subcontinent

- 2.1 The importance of understanding archaeological cultures viz a` viz landscape features- Hunter Gatherers to Early Pastoralists and Agriculturists
- 2.2 An over view of archaeological cultures in the subcontinent- pre-Mehrgarh , Mehrgarh and contemporary to Mehrgarh
- 2.3 Early/Pre Harappan Cultures-Prelude to Harappan Civilization -Harappan Civilization- the First Urbanization

2.4 Pastoralist/Early agriculturist Cultures contemporary to the Harappan-various Neolithic and Chalcolithic cultures of the Indian subcontinent

2.5 Decline of the Harappan civilization-Late/Post Harappan Cultures- a) Cemetery H phase, b) Gandhara Grave phase, c) Lustrous Red Ware.

Module –III

The Vedic Corpus and transition to the age of Janapadas and Mahajanapadas (c.1500BCE-400 BCE)

3.1 Spread of settlements -Political situation

3.2 Aryan Debate

3.3 Archaeological cultures beyond the Vedic milieu—Ochre coloured pottery, Black & Red Ware and Painted Grey Ware

3.4 Transition from chiefdom to kingdom- the Ganasangha tradition- sixteen mahajanapadas- Pre-eminence of Magadha

Module-IV

Mauryan & Post –Mauryan India (c. 400BCE-300CE)

4.1 Nature and extent of the Mauryan empire

4.2 Asoka's Dhamma

4.3 Decline of the Empire - rise of regional power centres in the post Mauryan period.

4.4 Central Asian intervention in north Indian politics focusing on the Indo-Greeks and the Kushanas

4.5 The Satavahanas and their struggle with the Saka Kshatrapas of western India

4.6 Kings and chieftains –the Cheras, Cholas and Pandyas- Sangam literature and archaeological evidence.

Module- V

The Age of the Guptas (c.300CE – 600CE)

5.1 Historical situation of India in 300CE—Emergence of the Gupta empire

5.2 The Empire in its mature form- Political achievements of the rulers-disintegration of the empire

5.3 Administrative structure of the empire with special reference to Bengal

5.4 Notion of Classical age and Threshold times

5.5 An introduction to the contemporary dynasties like the Vakatakas, the Kadambas etc.,

UNIT-II (50 marks; 40 lectures)

Module-I

Aspects of Society

1.1 Beginning of the Varna hierarchy in the Vedic period- forms of marriage- position of women

1.2 Varna and Jati- property rights of women

1.3 Slavery, Untouchability and attitude towards women

Module-II

Religious Development

- 2.1 Vedic religion—Changing notion of gods and goddesses-Sacrificial practices
- 2.2 Rise of new religious groups & philosophical thoughts—Buddhism, Jainism and philosophy of the Ajivikas and Charvakas
- 2.3 Doctrinal and philosophical Changes in Buddhism and Jainism – Rising Importance of the Brahmanical religion-Different Brahmanical religious groups.

Module III

Comparative Structures of Economies in some early states-Maurya- Satavahana-Kushana-Gupta

- 3.1 Introduction
- 3.2 Agrarian economy
- 3.3 Non-agricultural production-crafts-guilds
- 3.4 Monetization
- 3.5 Land grants and its politico-economic significance (Gupta period)

Module-IV

Patterns of Trade, Urbanization & Routes of communication

- 4.1 Trade and Urban development-Second urbanization
- 4.2 Trading networks-both inland and maritime (with special reference to linkage with Roman Empire as well as Southeast Asian countries)
- 4.3 Merchants and Markets

Module-V

Cultural life

- 5.1 Languages and Scripts –An overview
- 5.2 Nature of Mauryan art-Presence of different schools of sculpture and terracotta art in the post-Mauryan period
- 5.3 Different kinds of Religious Architecture, Sculptural art and Painting-an overview
- 5.4 Systems of knowledge- Science, Technology &Medicine

Suggested Readings

A.L.Basham, *The Wonder That Was India*, London, 1954.

Irfan Habib (general editor), *A People's History of India* (Relevant volumes), New Delhi.

Vol. 1 *Pre-history*,

Vol. 2 *The Indus Civilisation*,

Vol. 3 *The Vedic Age*,

D.N.Jha, *Ancient India: An Introduction*, New Delhi, 1998.

D.D.Kosambi, *An Introduction to the Study of Indian History*, Bombay, 1956.

----- *Combined Methods in Indology and Other Writings, Edited and Introduced by B.D.Chattopadhyaya.*, 2007 (revised edition)

R.C.Majumdar (general editor), *The History & Culture of the Indian People*, volumes I-III, Bombay, 1951, 1968,1970

Shireen Ratnagar, *Understanding Harappa*, Delhi, 2001.

Nihar Ranjan Ray, Brajadulal Chattopadhyaya, V.R. Mani and Ranabir Chakravarti eds. *A Source Book of Indian Civilization*, Kolkata, 2000.

H.C. Raychaudhuri, *Political History of Ancient India with a commentary by B.N.Mukherjee*, New Delhi, 1996 (8th edition)

R.S.Sharma, *India's Ancient Past*, New Delhi, 2005.

Upinder Singh. *A History of Ancient and Early Medieval India*. Delhi, 2008.

Romila Thapar, *Early India: From the Origins to AD 1300*, London, 2002.

Asvini Agarwal, *The Rise and Fall of the Imperial Guptas*, New Delhi, 1988.

D.P.Agarwal, *The Archaeology of India*, London, 1982.

F.R. Allchin (ed). *The Archaeology of Early Historic South Asia: The Emergence of Cities and States*, Cambridge, 1995.

A.S.Altekar, *The Position of Women in Hindu Civilization from Pre-historic times to the Present Day*, New Delhi, 1962.

A.L.Basham ed. *A Cultural History of India*, New Delhi, 1975.

Sukumari Bhattacharji. *Women and Society in Ancient India*. Calcutta, 1994.

Dilip Kumar Chakrabarti, *India, An Archaeological History*, Delhi, 1999

-----*An Oxford Companion to Indian Archaeology*, New Delhi, 2006.

Uma Chakravarti. *The Social Dimensions of Buddhism*. New Delhi: Oxford University Press, 1987.

-----, *Trade and Traders in Early Indian Society*, New Delhi, 2007 (revised edition)

R.Champakalakshmi, *Trade, Ideology and Urbanization: South India : 300BC to AD 1300*, Delhi, 1996.

D. Chanana, *Slavery in Ancient India as Depicted in Pali and Sanskrit Texts*, Delhi, 1960.

B.D. Chattopadhyaya. *Studying Early India: Archaeology, Texts and Historical Issues*. New Delhi, 2003.

D.P.Chattopadhyay, *Science and Society in Ancient India*, Calcutta, 1977.

George Erdosy, *Urbanization in Early Historic India*, Oxford, 1988.

Amalananda Ghosh, *The City in Early Historic India*, Shimla, 1973.

R. Kochar, *The Vedic People*, New Delhi, 2000.

Nayanjyot Lahiri, *The Decline and Fall of the Indus Civilization*, New Delhi, 2000.

R.C.Majumdar and A.S.Altekar eds. *The Vakataka Gupta Age*, Varanasi, 1955.

George Michell. *The Penguin Guide to the Monuments of India*. London, 1989.

B.N.Mukherjee, *The Rise and Fall of the Kushana Empire*, Calcutta, 1989.

-----*The Character of the Maurya Empire*, Kolkata, 2000

-----*Kushana Studies, New Perspectives*, Kolkata, 2004

Sheldon Pollock. *The Language of the Gods in the World of Men*. Sanskrit, Culture and Power in Premodern India. New Delhi, 2006.

G.L. Possehl, ed. *Harappan Civilization- A Recent Perspective*, Delhi, 1993 (second edition).

Shereen Ratnagar, *The End of the Great Harappan Tradition*, Delhi, 2000

Kumkum Roy, *The Emergence of Monarchy in North India: eighth to fourth centuries BC*, New Delhi, 1994

(ed), *Women in Early Indian Societies*. New Delhi, 1999.

Nihar Ranjan Ray, *Maurya and Post Maurya Art*, New Delhi, 1975.

Bhairabi Prasad Sahu (ed.). *Iron and Social Change in Early India*. New Delhi: Oxford University Press, 2006.

Richard Salomon. *Indian Epigraphy: A Guide to the Study of Inscriptions in Sanskrit, Prakrit, and Other Indo-Aryan Languages*. New York, 1998.

S.K.Saraswati, *A Survey of Indian Sculpture*, New Delhi, 1975 (second edition)

R.S.Sharma, *Perspectives in the Social and Economic History of Early India*, New Delhi, 1983.

-----*Material Cultures and Social Formations in Ancient India*, New Delhi, 1983.

----- *Aspects of Political Ideas and Institutions in Ancient India*. New Delhi, 2005 (reprint).

Early Medieval Indian Society: A Study in Feudalisation, Delhi, 2001.

Indian Feudalism, University of Calcutta, 1965.

Looking for the Aryans, 1995.

Advent of the Aryans, Manohar, 1999.

Sudras in Ancient India.

A.M.Shastri ed. *The Age of the Vakatakas*, Delhi, 1992.

K.A. Nilakantha Shastri, *A History of South India*, Madras, 1974 (4th edition)

D.C. Sircar, *Indian Epigraphy*, New Delhi, 1965.

Bardwell Smith ed., *Essays in Gupta Culture*, New Delhi, 1983

Frits Staal, *Discovering the Vedas: Origins, Mantras, Rituals, Insights*, New Delhi, 2008.

Romila Thapar. *The Mauryas Revisited*. Calcutta, 1987.

-----*From Lineage to State*, Delhi, 1996 (2nd edition).

----- *Asoka and the Decline of the Mauryas*. New Delhi, 2000.

Romila Thapar (et. al). *India: Historical Beginnings and the Concept of the Aryan*. New Delhi, 2006.

T.R. Trautmann (ed). *The Aryan Debate*. New Delhi, 2005.

এ.এল.বামশাম, অতীতের উজ্জ্বল ভারত, (*The Wonder That Was India*) প্রোগ্রেসিভ পাবলিশার্স, কলকাতা, ২০০৫.

রণবীর চক্রবর্তী, ভারত ইতিহাসের আদি পর্ব, কলকাতা, ২০০৭.

ইরফান হাবিব, ভারতবর্ষের সাধারণ মানুষের ইতিহাস

প্রথম খণ্ড : প্রাক-ইতিহাস, (*Pre-history*)এন.বি.এ, কলকাতা, ২০০২

দ্বিতীয় খণ্ড : সিন্ধু সভ্যতা, (*The Indus Civilisation*)এন.বি.এ, কলকাতা, ২০০২.

তৃতীয় খণ্ড : বৈদিক সভ্যতা, (*The Vedic Age*)এন.বি.এ, কলকাতা

ডি.এন.ঝা আদি ভারত: একটি সংক্ষিপ্ত ইতিহাস, (*Ancient India: An Introduction*),

প্রোগ্রেসিভ পাবলিশার্স, কলকাতা.

ডি.ডি. কোশাশ্বী, ভারত ইতিহাস চর্চাৰ ভূমিকা, (*An Introduction to the Study of Indian History*) কে পি, বাগচি এন্ড কোং, কলকাতা, ২০০২.

শিৱিন ৱত্নাগৰ হৰপ্পা সভ্যতাৰ সন্ধান, (*Understanding Harappa*), এন.বি.এ, কলকাতা, ২০০৩

হেমচন্দ্ৰ ৱায়চৌধুৰী, প্ৰাচীন ভাৰতেৰ ৱাজনৈতিক ইতিহাস, (*Political History of Ancient India*) পশ্চিমবঙ্গ ৱাজ্য পুস্তক পৰ্ষৎ, কলকাতা

ৱোমিলা থাপাৰ, ভাৰতবৰ্ষেৰ ইতিহাস, ওৱিয়েন্ট লংম্যান, কলকাতা

নৱেন্দ্ৰনাথ ভট্টাচাৰ্য, প্ৰাচীন ভাৰতে ধৰ্ম, কলকাতা, ১৯৮৮

নৱেন্দ্ৰনাথ ভট্টাচাৰ্য, প্ৰাচীন ভাৰতীয় সমাজ, পশ্চিমবঙ্গ ৱাজ্য পুস্তক পৰ্ষৎ, কলকাতা

সুকুমাৰী ভট্টাচাৰ্য, ইতিহাসেৰ আলোকে বৈদিক সাহিত্য, পশ্চিমবঙ্গ ৱাজ্য পুস্তক পৰ্ষৎ, কলকাতা

সুকুমাৰী ভট্টাচাৰ্য, প্ৰাচীন ভাৰত : সমাজ ও সাহিত্য, আনন্দ পাবলিশাৰ্স, কলকাতা

দিলীপ কুমাৰ চক্ৰবৰ্তী- ভাৰতবৰ্ষেৰ পাক ইতিহাস, আনন্দ পাবলিশাৰ্স, কলকাতা, ১৯৯৯

ৱণবীৰ চক্ৰবৰ্তী, প্ৰাচীন ভাৰতেৰ অৰ্থনৈতিক ইতিহাসেৰ সন্ধান, আনন্দ পাবলিশাৰ্স, কলকাতা, ২০০২ (সংশোধিত সংস্কৰণ).

দেবৱাজ চানানা, প্ৰাচীন ভাৰতে দাস প্ৰথা, (*Slavery in Ancient India as Depicted in Pali and Sanskrit Texts*), কে পি, বাগচি এন্ড কোং, কলকাতা, ১৯৯৫.

নীহাৰ ৱঞ্জন ৱায়, বাঙালিৰ ইতিহাস, কলকাতা, ১৯৮০ (দ্বিতীয় সংস্কৰণ)

ৱামশৰণ শৰ্মা, প্ৰাচীন ভাৰতেৰ অৰ্থনৈতিক ও সামাজিক ইতিহাস, (*Perspectives in the Social and Economic History of Early India*), ওৱিয়েন্ট লংম্যান, ১৯৯৬

ৱামশৰণ শৰ্মা, প্ৰাচীন ভাৰতে বস্তুগত সংস্কৃতি ও সমাজ সংগঠন, (*Material Cultures and Social Formations in Ancient India*), ওৱিয়েন্ট লংম্যান, ১৯৯৮

রামশরণ শর্মা, আদি মধ্যযুগের ভারতীয় সমাজ : সামন্ত-প্রক্রিয়া বিষয়ে এক সমীক্ষা, (Early Medieval Indian Society: A Study in Feudalisation), ওরিয়েন্ট লংম্যান, ২০০৩

রামশরণ শর্মা, ভারতের সামন্ততন্ত্র, (Indian Feudalism), কে পি, বাগচি এন্ড কোং, কলকাতা

রামশরণ শর্মা, আর্যদের অনুসন্ধান, (Looking for the Aryans), প্রোগ্রেসিভ পাবলিশার্স, কলকাতা

রামশরণ শর্মা, আর্যদের ভারতে আগমন, (Advent of the Aryans), ওরিয়েন্ট লংম্যান, ২০০১

রামশরণ শর্মা, প্রাচীন ভারতে শূদ্র, (Sudras in Ancient India), কে পি, বাগচি এন্ড কোং, কলকাতা

রোমিলা থাপার, অশোক ও মৌর্যদের পতন, (Asoka and the Decline of the Mauryas), কে পি, বাগচি এন্ড কোং, কলকাতা

সুনীল চট্টোপাধ্যায়, প্রাচীন ভারতের ইতিহাস (১ম খণ্ড), পশ্চিমবঙ্গ রাজ্য পুস্তক পর্ষৎ,

একাদশ মুদ্রণ : এপ্রিল ২০০৪

সুনীল চট্টোপাধ্যায়, প্রাচীন ভারতের ইতিহাস (২য় খণ্ড), পশ্চিমবঙ্গ রাজ্য পুস্তক পর্ষৎ, ৮ম মুদ্রণ : ফেব্রুয়ারি ২০০৪

হীরেন্দ্রনাথ মুখোপাধ্যায়, ভারতবর্ষের ইতিহাস (১ম খণ্ড)(প্রাচীন ও মধ্যযুগ), পশ্চিমবঙ্গ রাজ্য পুস্তক পর্ষৎ, ১ম মুদ্রণ : নভেম্বর ১৯৯৭.

ননীগোপাল চৌধুরী, বিদেশী পর্যটক ও রাজদূতদের বর্ণনায় ভারত, পশ্চিমবঙ্গ রাজ্য পুস্তক পর্ষৎ, আগস্ট ১৯৮৪.

PAPER II

History of India from C 600 to C1500

UNIT I c AD 600 - 1200 (50 marks; 40 lectures)

Module 1.

- 1.1 Sources & their interpretation: Inscriptions, Literature, Architectural Monuments & Sculpture, Coins
- 1.2 Historiography & Recent Debates (Periodisation / Feudalism / Segmentary State)

Module 2. Polity

- 2.1 Emergence of major political centres c 600 - 650: Kanauj, Bengal, Peninsular India
- 2.2 Political developments c 650 – 1200: Bengal, Western India, Peninsular India
- 2.3 Arab, Ghaznavid and Ghorid invasions: nature and impact

Module 3. Economy

- 3.1 Agricultural Expansion: Land grants and irrigation/agricultural technology
- 3.2 Land tenure: nature and changes
- 3.3 Urban centres: urban processes and population increase
- 3.4 Crafts and guilds
- 3.4 Indian and oceanic trade: a broad overview of trade linkages and commodities

Module 4. Society

- 4.1 Varna-Jati: the proliferation of castes
- 4.2 Gender relations: property rights; forms of marriage; attitudes towards women; women saints

Module 5. Culture & Religion

- 5.1 Sanskrit Literature; Evolution of literature in regional language with special reference to Bengali
- 5.2 Systems of knowledge: Schools of philosophy – an overview; Science: Mathematics, Astronomy
- 5.3 Temple and Cave Architecture; Sculpture
- 5.4 Overview of main religious sects: Buddhist, Vaishnavite, Shaivite, Bhakti

UNIT II c 600 – 1500 (50 marks; 40 lectures)

Module 1.

Survey of sources and historiography with special reference to Barani, Amir Khusrau and Ibn Batuta

Module 2. Polity & Institutional Structure [1206-1290;1290-1350;1350-1500]

- 2.1 The state in Northern India and the response to challenges
- 2.2 Legitimacy, Sovereignty and theories of kingship
- 2.3 Nature and composition of ruling groups and the consolidation of the authority of the Crown
- 2.4 Patterns of regional political formations in Eastern and Peninsular India: Bengal; Vijaynagar & Bahmani kingdoms
- 2.3 Evolution of iqta and amaranayaka / nayankara systems

Module 3 Economy

- 3.1 Agrarian economy of the Delhi Sultanate: agricultural production and pattern of land tenure
- 3.2 Revenue system and magnitude of taxation
- 3.3 Urban processes and non-agricultural production
- 3.4 Monetary system, market regulations and trade during the Sultanate period
- 3.5 Peninsular India – Expansion of agricultural frontiers; incidence of taxation; long-distance trade and the role of the state

Module 4 Society

- 4.1 Composition of rural society and the village community
- 4.2 Forms of dominance and resistance – slavery, peasant uprisings in North India; militarization of peasant society in Peninsular India.

Module 5. Culture & Religion

- 5.1 Literature : Persian, and literature in regional languages with special reference to Bengali literature
- 5.2 Architecture: Forms & Function – Sultanate & Provincial with special reference to Bengal
- 5.3 Sufism : origins, precepts, practices
- 5.4 Bhakti : Kabir, Nanak, Chaitanya
- 5.5 Science & Technology: Irrigation, Agricultural technology; Building techniques; Textile production

Suggested Readings

Ashraf, K.M.	Life and Conditions of the People of Hindustan (1250-1550)
Basham, A.L	The Wonder that was India
Basham, A.L (ed)	A Cultural History of India
Bose Mandakranta (ed)	Faces of Feminine in Ancient Medieval and Modern India (NewYork, 2000)
Chakravarti, R(ed)	Trade in Early India (Delhi)
Champakalakshmi, R	Trade, Ideology and Urbanisation : South India 300 BC – AD 1300 (Delhi 1996)
Chandra, S	History of Medieval India (800 – 1700)
Chattopadyay, B.D	The Making of Early Medieval India. (Delhi, 1994)
Chattopadyay, B.D	Aspects of Rural Settlements and Rural Society in Early Medieval India
Chattopadyay, B.D	Studying Early India: Archaeology, Texts and Historical Issues (New Delhi, 2003)
Chattopadyay, D.P	Science and Society in Ancient India (Calcutta, 1977)
Chaudhuri, K.N.	Trade and Civilisation in the Indian Ocean. An Economic History from the Rise of Islam to 1750
Eaton, R.M.	The Rise of Islam & the Bengal Frontier (1204 – 1760)
Gopal Lalanji	The Economic Life of Northern India (Varanasi, 1965)

- Habib, Md. And Nizami KA (eds)
Habib, Irfan
Habib, Irfan
- A Comprehensive History of India Vol. V
Medieval India: The Study of a Civilisation (New Delhi, 2008)
Economic History of Medieval India: A Survey, (New Delhi, 2001).
- Habibullah, A.B.M
- The Foundation of Muslim Rule in India
- Jackson, Peter
Jha D.N (ed)
Karashima, N.
- The Delhi Sultanate: A Political & Military History (Camb, 1999)
The Feudal Order (New Delhi, 2000)
South Indian History and Society : Studies from inscriptions
Towards a New Formation : South Indian Society under Vijaynagar
- Kulke, H. (ed)
Kumar Sunil
Majumdar R.C. et al (eds)
Majumdar R.C and Dasgupta K.K. (eds)
- The State in India (1000 – 1700)
The Emergence of the Sultanate of Delhi
History and Culture of the Indian People Vol. IV and Vol. V
A Comprehensive History of India Vol. III
- Meister M.M & Dhaky M.A
Mukherjee B.N
Mukhia, H. (eds)
Nizami, K.A.
Pollock Sheldon
- Indian Temple Architecture (Delhi, 1983)
Post-Gupta Coinages of Bengal (Calcutta, 1989)
The Feudalism Debate
Some Aspects of Religion and Politics in India in the 13th c
The Language of the Gods in the World of Men. Sanskrit, Culture and Power in Premodern India (New Delhi, 2006)
- Ray H.C
Roy Kumkum (ed)
Ray Nihar Ranjan et al ed.
Ramaswami Vijaya
- Dynastic History of Northern India (New Delhi, 1973)
Women in Early Indian Societies (New Delhi, 1999)
A Source Book of Indian Civilisation (Kolkata, 2000)
Walking Naked: Women, Society, Spirituality in South India (Simla, 1997)
- Rizvi, S.A.A.
Roychoudhury T.K. & Habib I. (eds)
Sastri, K.A. Nilakanta
- The Wonder that was India, Vol. II
The Cambridge Economic History of India Vol. I
A History of South India from Prehistoric Times to the Fall of Vijaynagar
- Sastri, K.A. Nilakanta (ed)
- A Comprehensive History of India Vol. II
- Sharma, R.S.
- Indian Feudalism
- Sharma, R.S.
- Early Medieval Indian Society: A Study in Feudalisation (Delhi, 2001)
- Shastri K.A. Nilkantha Shastri
Sherwani, HK & Joshi, PM (eds)
Singh, U
Stein, B
Thapar, R
Tripathi, R.P
Veluthat, K
Yadava, B.N.S.
Yazdani, G. (ed)
- The Cholas (Madras, 1975 [reprint])
The History of Medieval Deccan (1295 – 1724)
A History of Ancient & Early Medieval India
Peasant, State & Society in Medieval South India
Early India
Some Aspects of Muslim Administration
The Political Structure of Early Medieval South India
Society & Culture in North India in the 12th c
The Early History of the Deccan

কে. এম. আশরফ

হিন্দুস্থানের জন-জীবন ও জীবন চর্চা, (Life and Conditions of the People of Hindustan (1250-1550))

পার্ল পাবলিশার্স, কলকাতা, ১৯৮০

এ.এল.বাশাম,

অতীতের উজ্জ্বল ভারত,(The Wonder that was India),

প্রোগ্রেশিভ পাবলিশার্স, কলকাতা, ২০০৫

হীরেন্দ্রনাথ মুখোপাধ্যায়,

ভারতবর্ষের ইতিহাস (১ম খণ্ড)(প্রাচীন ও মধ্যযুগ), পশ্চিমবঙ্গ রাজ্য পুস্তক পর্ষৎ, ১ম মুদ্রণ : নভেম্বর ১৯৯৭.

নরেন্দ্রনাথ ভট্টাচার্য

ধর্ম ও সংস্কৃতি : প্রাচীন ভারতীয় প্রক্ষাপট

মিহিরকুমার রায়

ভারতের ইতিহাস (তুর্ক-আফগান যুগ), পশ্চিমবঙ্গ রাজ্য পুস্তক পর্ষৎ, ২য় মুদ্রণ : ফেব্রুয়ারী ১৯৯২.

রণবীর চক্রবর্তী

প্রাচীন ভারতের অর্থনৈতিক ইতিহাসের সন্ধান, আনন্দ পাবলিশার্স, কলকাতা

রণবীর চক্রবর্তী

ভারত ইতিহাসের আদি পর্ব, ওরিয়েন্ট লংম্যান, কলকাতা, ২০০৭

ইরফান হাবিব,

মধ্যযুগের ভারতের অর্থনৈতিক ইতিহাস, (Economic History of Medieval India: A Survey), প্রোগ্রেশিভ পাবলিশার্স, কলকাতা, ২০০৯

ইরফান হাবিব, (সম্পাদিত)

মধ্যকালীন ভারত ১-৪ খন্ড (Medieval India), কে পি, বাগচি এন্ড কোং, কলকাতা.

এ. বি. এম. হাবিবুল্লাহ

ভারতে মুসলিম শাসনের প্রতিষ্ঠা ১২০৬-১২৯০,(The Foundation

সেন সমরেন্দ্রনাথ	of Muslim Rule in India), প্রোগ্রেসিভ পাবলিশার্স, কলকাতা
রামশরণ শর্মা	বিজ্ঞানের ইতিহাস, (শৈব্য প্রকাশন, ১৯৯৬)
রামশরণ শর্মা	ভারতের সামন্ততন্ত্র, (Indian Feudalism), কে পি, বাগচি এন্ড কোং, কলকাতা
রামশরণ শর্মা	আদি মধ্যযুগের ভারতীয় সমাজ : সামন্ত-প্রক্রিয়া বিষয়ে এক সমীক্ষা (Early Medieval Indian Society: A Study in Feudalisation) ওরিয়েন্ট লংম্যান, ২০০৩
অনিরুদ্ধ রায় ও রত্নাবলী চট্টোপাধ্যায়,	মধ্যযুগে বাংলার সমাজ ও সংস্কৃতি, কে পি, বাগচি এন্ড কোং, কলকাতা, ১৯৯২
অনিরুদ্ধ রায়	মধ্যযুগের ভারতের ইতিহাস : সুলতানি আমল, ওরিয়েন্ট লংম্যান, কলকাতা.
আব্দুল করিম	বাংলার ইতিহাস : সুলতানি আমল, ঢাকা.

PART-II

PAPER III

Transformation of Europe (15th – 17th Centuries)

UNIT-I (50 marks; 40 lectures)

Module 1

- 1.1 Nature of the Feudal Society and its regional variations
- 1.2 Crisis of Feudalism
- 1.3 Transition Debate.

Module 2

- 2.1 Economic Crisis and the commercial decline in the 14th Century Europe
- 2.2 The urban decay and the epidemics.

Module 3

- 3.1 Impact of the fall of Constantinople.
- 3.2 Development of National Monarchy.

Module 4

- 4.1 Economy in the 15th Century Europe
- 4.2 Economic expansion of Europe in the 16th Century
- 4.3 Proto-industrialisation – the rise of new merchants
- 4.4 Price Revolution
- 4.5 Agricultural Revolution and the Enclosure Movement.

Module 5

- 5.1 Printing Revolution
- 5.2 Revolution in war techniques
- 5.3 The exploration of the new world
- 5.4 Portuguese and Spanish voyages.

Module 6

- 6.1 Renaissance
- 6.2 Renaissance humanism
- 6.3 Rediscovery of classics
- 6.4 Italian renaissance and its impact on art, culture, education and political thought
- 6.5 Northern humanism.

UNIT-II (50 marks; 40 lectures)

Module 1

- 1.1 The formation of early modern state
- 1.2 The empire of Charles V of Spain

1.3 New Monarchy in England.

Module 2

2.1 Reformation movements

2.2 Origins & courses

2.3 Martin Luther & Lutheranism

2.4 John Calvin & Calvinism

2.5 Radical reformation: Anabaptists and Huguenots

2.6 English reformation and the role of the state

2.7 Counter Reformation.

Module 3

The economy of the 17th Century Europe.

Module 4

4.1 Origins of modern science

4.2 Scientific Revolution

4.3 Emergence of scientific academies

4.4 Origins of Enlightenment.

Module 5

5.1 Peace of Westphalia (1648)

5.2 Emergence of modern European state system.

Module 6

6.1 The English Civil War of the 17th Century

6.2 Political ideas of the Civil War

6.3 The Settlement of 1688 and the ideas of John Locke and the concept of liberalism.

Suggested Readings

1. Anderson, Perry, The lineages of the Absolutist States.
2. Aston, T.H. and Philipin C.H.E. (eds.), The Brenner Debate: Agrarian Class Structure and Economic Development in Pre-Industrial Europe, Cambridge University Press. 2005.

3. Bernal J.D, Science in History
4. Burke, Peter, The Renaissance.
5. Cameron, Euan (ed), Early Modern Europe: An Oxford History, OUP.
6. Dunn Recharad S., The Age of Religious Wars, 1559-1715, W.W. Norton & Company, 2004.
7. Elton, G.R., Reformation Europe, 1517-1559.
8. Gilmore, M.P., The World of Humanism, 1453-1517.
9. Hale, J.R., Renaissance Europe
10. Hall, R., From Galileo to Newton.
11. Hill, Christopher, A century of Revolutions.
12. Hilton, Rodney, Transition from Feudalism to Capitalism, Aakar Books, 2006.
13. Koenigsberger, H.G. and Mosse, G.L., Europe in the Sixteenth Century.
14. Lee, Stephen J., Aspects of European History, 1494-1789.
15. Owie, L.W., Seventeenth Century Europe.
16. Parker, G. and Smith, L.M., General Crisis of the Seventeenth Century.
17. Pennington, D.H., Seventeenth Century Europe.
18. Rabb, Theodore K., The struggle for Stability in Early Modern Europe.
19. Rice, Eugene F. and Grafton, Anthony, The Foundations of Early Modern Europe, 1460-1559, W.W. Norton & Company, 2004.
20. The Cambridge Economic History of Europe, Vol. I, IV.
21. The New Cambridge Economic History of Europe, Vol. I, VII.

১. অমলেশ ত্রিপাঠী, ইতালির র্যনেসাঁস বাঙালির সংস্কৃতি, আনন্দ পাবলিশার্স, কলকাতা, ১৯৯৪।
২. অশীন দাশগুপ্ত, ভারত মহাসাগরে বাণিজ্য ও রাজনীতি ১৫০০-১৮০০, আনন্দ পাবলিশার্স, কলকাতা, ১৯৯৯।
৩. জে.ডি.বার্নাল, ইতিহাসে বিজ্ঞান, (Science in History), আনন্দ পাবলিশার্স, কলকাতা, ২০০৫।
৪. সমরেন্দ্রনাথ সেন, বিজ্ঞানের ইতিহাস, শৈব্যা প্রকাশন, কলকাতা, ১৯৯৬।
৫. স্নেহাদ্রি ভট্টাচার্য , ইংলন্ডের ইতিহাস (টিউডর যুগ), পশ্চিমবঙ্গ রাজ্য পুস্তক পর্ষৎ, কলকাতা, ১৯৯৫।
৬. ভাস্কর চক্রবর্তী, সুভাষ রঞ্জন চক্রবর্তী এবং কিংশুক চট্টোপাধ্যায়, ইউরোপে যুগান্তর, নবভারতী প্রকাশনী, কলকাতা, ২০০৫।
৭. রীলা মুখার্জী, রূপান্তরিত ইউরোপ (৯০০ - ১৮০০), প্রোগ্রেসিভ পাবলিশার্স, কলকাতা, ২০০৪।

PAPER-IV

History of India from C1500 to C1800

UNIT-I (50 marks; 40 lectures)

Module-1: The Mughals

1.1. Historiography and sources: i) Historiography: different approaches;

ii) An overview of sources including: Abul Fazl, Badauni,

Bernier.

Module 2: The foundation and consolidation of Empire

2.1. A brief overview of India on the eve of Babur's invasion-kingdoms of Delhi, Mewar, Bengal, Bihar, Punjab;

2.2 Conquest and stability: i) Struggle for Empire in North India- significance of Babur and Humayun's reign ii) significance of Afghan despotism and rise of Sher Shah Sur to power and his contribution.

2.3. Expansion and consolidation of the empire: i) making of a new imperial system and administration- the Mughal nobility, mansab and jagir; ii) formation and evolution of the Mughal ruling class iii) Nurjahan – her role in imperial politics and the 'junta' iv) the mansabdari system under Shahjahan and Aurangzeb in 17th century.

2.4. The Mughals and the North-western frontier and Central Asia.

Module 3: Ideology and State in Mughal India

3.1. i) The Turko-Mongol tradition; ii) the Akbari imperial agenda and Suh-i kul ; iii) Akbar's attitude towards religion and the state;

3.2. Evolution of imperial policy towards religion and state in the 17th century;

3.3. Ideology of alliances-the Mughals and the Rajputs in 16th & 17th centuries.

Module 4: Economy in Mughal India: Patterns, prospects and structure

4.1. The system of agricultural production-agricultural technology and crop patterns; i) Zabti system- magnitude of land tax; ii) non-agricultural production;

4.2. Trade, commerce and monetary system-i) inland and oceanic trade network in the 17th century; ii) creation of new trading centres; iii) crafts, industries and organization;

Module 5: Crisis of the Mughal Empire

5.1. Aurangzeb, the imperial elite and the Deccan wars;

5.2. Rise of the Marathas under Shivaji.

5.3. Popular revolts within the Mughal Empire - the Jats, Satnamis, Afghans and the Sikhs;

5.4. Crisis in the Jagirdari system -its political and economic implications.

UNIT-II (50 marks; 40 lectures)

Module 1: Society in Mughal India- structure and growth

1.1. Rural society and agrarian relations: i) land ownership and nature of land rights, ii) zamindars and peasantry;

1.2. Urban society: i) towns and town life, ii) merchant communities, artisans and bankers.

Module 2: Religion and culture in Mughal India

2.1. Sufism;

2.2. Bhakti movement in the 17th century –the Vaishnava Bhakti cult in Bengal and its regional variations;

2.3. Literature, painting and architecture;

2.4. Technology – an overview of mechanical devices in textile, irrigation, military & building technology.

Module 3: Decline of the Mughals & the Emergence of Successor States

3.1. Interpretations on the decline of the Mughal Empire;

3.2. Emergence of the regional powers -case studies of Maharashtra, Awadh and Bengal;

3.3. Bengal Nawabs and the rise of the English East India Co. in Bengal;

Module 4: Consolidation of English Power

4.1. The Anglo –French relations;

4.2. Buxar, Diwani; the Famine, Drain of Wealth; framework of Company's control (the Regulating Act, Pitt's India Act); the Permanent settlement.

4.3. Company's relationship with the other Indian powers- Mysore and Awadh .

Module 5: Interpreting the 18th century and transition to colonialism

Suggested Readings

For Unit 1

Ali, M. Athar-i) Mughal India: Studies in Polity, Ideas, society and Culture.

ii) The Mughal Nobility under Aurangzeb.

Alam, Muzaffar & Subhramanyam, Sanjay (ed.)-The Mughal state.

Bashir, Ahmed- Akbar, the Mughal Emperor.

Bernier, F.- Travels in Mughal India.

Chandra, Satish-i) A History of Medieval India (part II)

ii) Historiography, Religion and State in Medieval India

iii) Parties and Politics at the Mughal Court 1707-1740.

iv) The 18th century in India: Its economy and the Role of the Marathas, the Jats and the Sikhs and the Afghans and Supplement (K.P. Bagchi)

v) Mughal Religious Policies, the Rajputs and the Deccan.

Streusand D.F.-The Formation of the Mughal Empire

Habib Irfan(ed.)-i) Medieval India ii) The Agrarian System of Mughal India(1556-1707).

Mishra, Satish -Rise of Muslim Power in Gujrat(part I)

Raychoudhuri T.K. & Habib I. (eds.)-The Cambridge Economic History of India vol.1

Richards J.F. -The Mughal Empire

Gordon S.-The Marathas 1600-1818

Hasan S. Nurul-Thoughts on Agrarian Relations in Mughal India

Kulke, H.(ed.)The State in India 1000-1700.

Unit 2

Alavi, Seema (ed.)-The Eighteenth Century in India

Alam, Muzaffar & Subhramanyam, Sanjay (ed.)-The Mughal state.

Alam, Muzaffar-The Crisis of Empire in Mughal North India: Awadh and Punjab-1707-1748.

Ali, M. Athar- i) The Mughal Nobility Under Aurangzeb, ii) Mughal India: Studies in Polity, Ideas, society and Culture.

Arasaratnam, S.: Maritime India in the 17th century.
 Barnett, R.B.-North India between Empires: Awadh, the Mughals and the British.
 Bandopadhyay, S- From Plassey to Partition
 Bayly, C.A. (i)-Indian Society and the Making of the British Empire; ii) Rulers, Townsmen & Bazaars, North India in the age of British Expansion 1770-1870.
 Bayly, Susan-Caste, Society and Politics in India from the 18th century to the modern age.
 Chaudhuri, K.N.-Trade & Civilization: An Economic History from the Rise of Islam to 1750.
 Eaton, R.M.-i) The Rise of Islam and the Bengal Frontier 1204-1760; ii) The Sufis of Bijapur
 Fukuzawa, H.-The Medieval Deccan: Peasants, Social systems and States 16th to 18th centuries.
 Gordon S.-The Marathas 1600-1818
 Grewal J.S.-The Sikhs of the Punjab
 Habib Irfan- Resistance & Modernization under Haider Ali & Tipu Sultan
 Marshall P.J. i)-East Indian Fortunes: the British in Bengal in the 18th cent. ii) Bengal the British Bridgehead iii) (Edited) - The Eighteenth century in Indian history: Evolution or revolution
 Nizami K.A. -i) Some Aspects of Religion and Politics in India in the 13th century, ii) (ed.) Politics and society during the early Medieval Period : The collected Works of Prof. Md. Habib (2 vols.)
 Rizvi S.A.A. -i) The Wonder that was India (vol.2);
 ii) A History of Sufism in India
 Sarkar, Sir J.N. -i) History of Aurangzeb 5 vols.; ii) The Fall of the Mughal Empire (4 vols.)
 Stein, Burton -i) Vijayanagara
 ii) History of Deccan
 iii) Eighteenth Century in India: Another view (Studies in History, No. I, 1989)
 iv) Peasant, State and society in Medieval South India (OUP)
 Tripathi R.P. -i) The Rise & Fall of the Mughal Empire ii) Some Aspects of Muslim Administration
 Wink, Andre- Land and Sovereignty in India: Agrarian society and politics under the eighteenth century Maratha Swarajya.

এম.আখার.আলি, আওরঙ্গজেবের সময়ে মুঘল অভিজাত শ্রেণী, (The Mughal Nobility under Aurangzeb) কে পি, বাগচি এন্ড কোং, কলকাতা.

শেখর বন্দ্যোপাধ্যায়, অষ্টাদশ শতকের মুঘল সংকট ও আধুনিক ইতিহাস চিন্তা, সুবর্ণরেখা, কলকাতা, ১৯৮৩.

গৌতম ভদ্র, মুঘল যুগে কৃষি অর্থনীতি ও কৃষক বিদ্রোহ, সুবর্ণরেখা, কলকাতা, ১৯৮৩

সতীশ চন্দ্র, মুঘল দরবারে দল ও রাজনীতি, (Parties and Politics at the Mughal Court 1707- 1740), কে পি, বাগচি এন্ড কোং, কলকাতা, ১৯৭৮.

বিনয় ভূষণ চৌধুরী , ঔপনিবেশিক আমলে বাংলার কৃষি ইতিহাস, কে পি, বাগচি এন্ড কোং, কলকাতা

বিনয় ভূষণ চৌধুরী ও অন্যান্যরা, বাংলার কৃষি সমাজের গঠন, কে পি, বাগচি এন্ড কোং, কলকাতা

ইরফান হাবিব, মধ্যকালীন ভারত, খণ্ড ১ - ৪ , কে পি, বাগচি এন্ড কোং, কলকাতা

ইরফান হাবিব, মুঘল সাম্রাজ্য ও তার পতন: একটি সমীক্ষা, পশ্চিমবঙ্গ ইতিহাস সংসদ, ২০০০

ইরফান হাবিব মুঘল ভারতের কৃষি ব্যবস্থা, (The Agrarian System of Mughal India (1556-1707)), কে পি, বাগচি এন্ড কোং, কলকাতা

ইরফান হাবিব , মধ্যযুগের ভারতের অর্থনৈতিক ইতিহাস, (Economic History of Medieval India: A Survey), প্রোগ্রেসিভ পাবলিশার্স, কলকাতা, ২০০৯

ইরফান হাবিব, ভারতের ইতিহাস প্রসঙ্গ: মার্কসীয় চেতনার আলোকে, (Essays in Indian History: Towards a Marxist Perception) ন্যাশনাল বুক এজেন্সি, কলকাতা, ১৯৯৯

ইসলাম, সিরাজুল- বাংলার ইতিহাস ঔপনিবেশিক শাসনকাঠামো ,চয়নিকা, ঢাকা, ২০০২

অনিরুদ্ধ রায় - মধ্যযুগের ভারতের অর্থনৈতিক ইতিহাস, ১২০০-১৭৫৭, প্রোগ্রেসিভ পাবলিশার্স, কলকাতা

অনিরুদ্ধ রায় - মুঘল যুগের অর্থনৈতিক ইতিহাস, কে পি, বাগচি এন্ড কোং, কলকাতা

জগদীশ নারায়ণ সরকার, মুঘল অর্থনীতি : সংগঠন এবং কার্যক্রম, (Mughal Economy: Organisation and Working) পশ্চিমবঙ্গ রাজ্য পুস্তক পর্ষদ, কলকাতা, ১৯৯১.

সিদ্দিকি- মুঘলযুগের ভূমিরাজস্বব্যবস্থা, পার্ল পাবলিশার্স, কলকাতা

হীরেন্দ্রনাথ মুখোপাধ্যায়, ভারতবর্ষের ইতিহাস (২য় খণ্ড)

(মুঘল ও ব্রিটিশ ভারত), পশ্চিমবঙ্গ রাজ্য পুস্তক পর্ষৎ , কলকাতা, ১৯৯৮

মৃগাল চক্রবর্তী, সিরাজ-উদ-দৌলা , পশ্চিমবঙ্গ রাজ্য পুস্তক পর্ষৎ, কলকাতা, ১৯৮১.

রজতকান্ত রায়, পলাশীর যড়যন্ত্র ও সেকালের সমাজ, আনন্দ পাবলিশার্স, কলকাতা।

সুশীল চৌধুরী - পলাশীর অজানা কাহিনী, আনন্দ পাবলিশার্স, কলকাতা।

রত্নাবলী চট্টোপাধ্যায় - মুঘল যুগের দরবারি চিত্রকলা

PART-III

Paper VA

History of East Asia from 1839 to 1950

UNIT I: China (50 marks; 40 lectures)

Module 1

Pre-colonial China

- 1.1 The nature and structure of the traditional Chinese society- the peasantry and the gentry class
- 1.2 Government bureaucracy and central control
- 1.3 China's pre-modern economy

Module 2

Colonial Penetration in China

- 2.1 The tribute system, the Canton system and their collapse
- 2.2 Opium wars and treaties with imperialist powers and struggle for concessions in
China
- 2.3 Increasing western economic interests- emergence of a coastal enclave economy- rise
of comprador bourgeoisie-open-door policy

Module 3

Popular Movements with special reference to Taiping Revolt

- 3.1 Background and cause
- 3.2 Nature
- 3.3 Causes of failure

3.4 Legacy of the Revolt

3.5 Other near contemporary rebellions – Nien, Muslim rebellions (1855-1874), Miao
insurrection (1850-1872)

Module 4

Restoration, Reform, Revolution

4.1 Tungchi Restoration

4.2 The Self-strengthening Movement

4.3 The Reform Movement of 1898 iv) Boxer Rebellion and its consequences v) Late
Ching Reforms (1901-08) vi) Republican Revolution of 1911- role of various social
classes

4.4 Sun Yat Sen- principles and politics

Module 5

Nationalism and Communism in China

5.1 Emergence of the Republic and Yuan Shi Kai

5.2 Warlordism (1916-1925)

5.3 New Intellectual ideas and May Fourth Movement- origin, nature and significance

5.4 Problem of early industrialisation

5.5 Political crisis in the 1920's- The Kuomintang- The first United Front- The
Kuomintang-Communist Conflict- Ten years of Nanking Government

5.6 The Communist Party under Mao Tse Tung- the making of the Red Army- The
Second United Front- Long March- Second Sino-Japanese War (1937)- Yanan
experiment- The Chinese Revolution (1949)- ideology, causes and significance - the
Establishment of the Peoples' Republic of China.

UNIT II: Japan (50 marks; 40 lectures)

Module 1

Pre- Restoration Period

- 1.1 The Tokugawa Shogunate- the feudal society and government
- 1.2 Encounter with the West- the Perry Mission and the opening up of Japan to the West
- 1.3 The crisis and fall of Shogunate

Module 2

Meiji Restoration (1867-68)

- 2.1 Its nature and character
- 2.2 Different social classes and groups behind the Restoration
- 2.3 Processes of modernization- social, military, political and educational
- 2.4 Contrasting response of China and Japan to the impact of the West

Module 3

Popular and Democratic Movements

- 3.1 Satsuma rebellion
- 3.2 Popular rights movement
- 3.3 Movements leading to the Meiji constitution
- 3.4 Rise of political parties

Module 4

Economic Modernisation

- 4.1 Abolition of feudalism and economic growth
- 4.2 New land settlement pattern
- 4.3 Industrialisation and the role of state and private entrepreneurs iv) Zaibatsu

Module 5

Emergence of Japan as an Imperial Power

5.1 The Sino-Japanese War

5.2 The Anglo-Japanese alliance

5.3 The Russo- Japanese War

5.4 World War I and after- Japan in the Pacific and the Washington Conference

5.5 Manchurian Crisis

5.6 Failure of the Democratic system and the rise of militarism in the 1930's and 1940's

5.7 Japan and the World War II

5.8 Post War Japan under General MacArthur.

Suggested Readings

Allen George – A Short Economic History of Modern Japan (London, Allen Unwin, 1946).

Beasley W.G. - The Modern History of Japan (London, Weidenfeld and Nicolson, 1963).

Beckmann George M – Modernization of China and Japan (Harper and Row, 1962).

Beckmann George M - The Making of Meiji Constitution (Greenwood, 1975).

Bianco Lucian – Origins of the Chinese Revolution, 1915-1949 (London, OUP, 1971).

The Cambridge History of Japan Vols V and VI, edited by Jansen Y.B. (Cambridge, 1988 & 1989).

The Cambridge History of China Vol X edited by Fairbank J.K. (Cambridge, 1978)

Chesneaux Jean et al – China from Opium War to 1911 Revolution (Sussex, Harvester Press, 1976).

Chesneaux Jean et al – China from the 1911 Revolution to Liberation (Delhi, Khosla Publishing, 1986).

Chesneaux Jean et al – Peasant Revolts in China, 1840-1949 (London, Thames and Hudson, 1973).

Chen Jerome – Mao Tse Tung and the Chinese Revolution (Cambridge, 1970).

Fairbank John K, et al – East Asia: The Modern Transformation (London, George Allen & Unwin, 1965).

Fitzgerald C.P. – Birth of Communist China (Harmondsworth, Penguin Books, 1964).

Gordon Andrew – A Modern History of Japan: From Tokugawa Times to Present (New York, 2003).

Halliday Jon – A Political History of Japanese Capitalism (New York, Pantheon, 1975).

Hsu C.Y. Immanuel – The Rise of Modern China (O.U.P., 1989).

Johnson Chalmers A - Peasant Nationalism and Communist Power: The Emergence Of Red China, 1937-1945 (California, Standford University Press, 1962).

Jon Livingston et al – The Japan Reader Vol. – Imperial Japan 1800-1945 (Pantheon, 1974).

Norman E.H. – Japan’s Emergence as a Modern State (New York, 1946).

Peffer Nathaniel – The Far East: A Modern History (Ann Arbor, University of Michigan Press, 1950).

Purcell Victor – The Boxer Uprising: A Background Study (Cambridge, 1963).

Sansom George – The Western World and Japan (London Crescent Press, 1950).

Schurmann Franz and Orville Schell (eds) China Readings 2 Vols (Imperial Ch; Republican Ch.).

Storry Richard – A History of Modern Japan (London, O.U.P. 1965).

Tse Tung Chow – The May Fourth Movement: Intellectual Revolution in Modern China (California, Stanford University Press, 1967).

Vinacke H – A History of the Far East in Modern times (London, George Allen and Unwin, 6th Ed, 1960).

Wright Mary C – China in Revolution: The First Phase 1900-1913 (Yale, 1968).

Yanaga Chitoshi – Japan since Perry (Greenwood, 1975).

১. দেবপ্রসাদ চৌধুরী, আধুনিক যুগে পূর্ব এশিয়ার সংক্ষিপ্ত ইতিহাস, পশ্চিমবঙ্গ রাজ্য পুস্তক পর্ষৎ, কলকাতা, ১৯৮৬.
২. অমিত ভট্টাচার্য, চীনের রূপান্তরের ইতিহাস ১৮৪০-১৯৬৯, সেতু প্রকাশনী, কলকাতা, ২০০৪।
৩. অমিত ভট্টাচার্য, জাপানের রূপান্তরের ইতিহাস ১৬০০-১৯৪৫, সেতু প্রকাশনী, কলকাতা, ২০০৫।
৪. হরপ্রসাদ চট্টোপাধ্যায়, জাপানের ইতিহাস, এ. মুখার্জী অ্যান্ড কোং, কলকাতা, ১৯৮৫।
৫. হরপ্রসাদ চট্টোপাধ্যায়, চীনের ইতিহাস, এ. মুখার্জী অ্যান্ড কোং, কলকাতা, ১৯৮৮।
৬. জহর সেন, এ যুগের চীনকথা, মিত্রম্ , কলকাতা, ২০০৭।
৭. সিদ্ধার্থ গুহ রায়, আধুনিক পূর্ব এশিয়া : চীন ও জাপানের ইতিহাস, প্রগ্রেসিভ পাবলিশার্স, কলকাতা, ১৯৯৬।

PAPER V B

Aspects of Antiquity

UNIT-I (50 marks; 40 lectures)

Module 1- Background

- 1.1 Major centres of the Ancient Mediterranean World: Mesopotamia, Egypt and Persia
- 1.2 Minoans & Mycenaeans: Impact on Greek civilisation
- 1.3 Etruscan contribution to Roman civilisation

Module 2- Ancient Historiography

- 2.1 Archaeology and the study of ancient history
- 2.2 Ancient Greek historiography – contributions of Homer, Herodotus and Thucydides
- 2.3 Ancient Roman historiography – contributions of Polybius, Livy & Tacitus

Module 3- Political History of Greece

- 3.1 Experiments with State Formation - The rise of the polis. Features, Nature and Class Composition - The Athenian and Spartan models.
- 3.2 Expansion of Greece – colonization; The Persian Wars – their Impact; The Confederacy of Delos; the Athenian Empire
- 3.3 The Peloponnesian War – origins - the crisis of Athenian hegemony
- 3.4 Decline of Polis

Module 4- Macedonian Expansion

- 4.1 Macedonian expansion – Alexander’s conquests;
- 4.2 Character of the Macedonian Empire
- 4.3 The Hellenistic world after Alexander

Module 5- Political History of Rome

- 5.1 Transition of the Roman state from monarchy to republic
- 5.2 Development of the Republican Constitution - Citizenship in Ancient Rome. Stages of Roman jurisprudence
- 5.3 Roman expansion in the Mediterranean – Roman imperialism and its consequences.
- 5.4 Fall of the Republic and establishment of the Principate.

UNIT-II (50 marks; 40 lectures)

Module 1-Society

- 1.1 Social issues in ancient Greece –Slavery, gender-the social basis of Athenian democracy.
- 1.2 Roman society - Servian reforms - the “Struggle of the Orders”- changes in Roman society – slavery, gender - the army as a factor in Roman social and political life

Module 2-Economy

- 2.1 Slavery & the Greek economy - Commercial hegemony of Athens & its consequences.
- 2.2 Roman economy- Urban or Rural? Impact of Slavery. Roman domination in Mediterranean trade

Module 3-Religion

- 3.1 Homeric Religion & Mystery Cults in ancient Greece.
- 3.2 Eclectic nature of Roman religious practices
- 3.3 Rise and development of the early Christian Church.

Module 4-Culture

- 4.1 Literature and philosophy in ancient Greece and Rome: Dramatics in ancient Greece-the Sophists- Socrates, Plato & Aristotle – The Augustan Age as the “Golden Age” of Latin literature.
- 4.2 Spectacle & political culture: Festivals & games in Ancient Greece. Gladiatorial games in Ancient Rome.
- 4.3 Art and architecture in ancient Greece & Rome

Module 5-Constructs of Civilization

- 5.1 Definitions of “civilization” and “barbarism” in the ancient Mediterranean world
- 5.2 Impact of barbarian invasions on the Roman Empire. Decline & fall of the Western Roman Empire-
- 5.3 Persistence of the Roman Empire in the East – ‘Hellenistic Civilisation, Roman Civilisation or Christian Civilisation’?

Suggested Readings

1. Lukas de Blois & R.J.van der Spek :Introduction to the Ancient World
2. J.B. Bury and Russel Meiggs : The History of Greece
3. A Andrewes :The Greeks
4. Marcel LeGlay, Jean-Louis : A History of Rome Voisin & Yann Le Bohec
5. H.D.F. Kitto : The Greeks
6. Alfred Zimmern : The Greek Commonwealth
7. Anton Powell : Athens and Sparta
8. Victor Ehrenberg : From Solon to Socrates

9. J.V.A. Fine : History of Greece
10. Robin Osborne : Classical Greece
11. M.I. Finley (ed) : The Legacy of Greece
12. M.I. Finley (ed) : Slavery in Classical Antiquity
13. G. Glotz : Ancient Greece at Work
14. A.H.M. Jones : The Athenian Democracy
15. Stephen Usher : The Historians of Greece and Rome
16. H.H. Austin : The Hellenistic Period
17. J.R. Hamilton : Alexander the Great
18. M Palattino : The Etruscans
19. H.I. Flower (ed) : The Cambridge Companion to Roman Republic
20. Arthur Gilman : Rome from the Earliest Times to the End of Republic
21. Brinmann Klaus : History of the Roman Republic
22. Michael Grant : The World of Rome
23. Michael Grant : Civilization of the Ancient Mediterranean
24. Ferril Arthur : The Fall of the Roman Empire
25. H. Milman : History of Latin Christianity
26. F.W. Wallbank : The Awful Revolution: Decline of the Roman Empire in the West

27. Michael Vickers : Roman World
28. N Lewis & M Reinhold : Roman Civilization
29. J. Broadman, J Griffin and O. Murray (eds) : Oxford History of the Classical World

30. The Cambridge Ancient History-vols IV, V & VI

১. রেবতীমোহন লাহিড়ী, প্রাচীন গ্রীসের ইতিহাস, পশ্চিমবঙ্গ রাজ্য পুস্তক পর্ষৎ, কলকাতা, ১৯৯৯.
২. হীরেন্দ্রনাথ মুখোপাধ্যায়, গ্রীসের পুরাকাহিনী , পশ্চিমবঙ্গ রাজ্য পুস্তক পর্ষৎ, কলকাতা, পর্ষৎ সংস্করণের ৩য় মুদ্রণ : সেপ্টেম্বর ১৯৯৯.
৩. গীতশ্রী বন্দনা সেনগুপ্ত, পেলোপনেসীয় যুদ্ধ, পশ্চিমবঙ্গ রাজ্য পুস্তক পর্ষৎ, কলকাতা, ২য় মুদ্রণ : মে ১৯৯০.
৪. সুনীল চট্টোপাধ্যায়, প্রাচীন যুগের গ্রীসের ইতিহাস , পশ্চিমবঙ্গ রাজ্য পুস্তক পর্ষৎ, কলকাতা, ৩য় সংস্করণ (২য় মুদ্রণ) : জানুয়ারি, ২০০৩.
৫. অমলেশ ত্রিপাঠী, ইতিহাস ও ঐতিহাসিক, পশ্চিমবঙ্গ রাজ্য পুস্তক পর্ষৎ, কলকাতা, ৩য় সংস্করণ: ডিসেম্বর ১৯৯৫

PAPER VI

History of India from C1800 to 1964

UNIT-I: From 1818 to 1885 (50 marks; 40 lectures)

Module 1: Understanding Modern India

- 1.1 East India Company as a super-ordinate power-colonial state and ideology
- 1.2 Orientalism, Utilitarianism in relation to India.
- 1.3 Theory of rent and laissez faire

Module 2: The Indian Response

- 2.1 Ram Mohun, Vidyasagar and the Young Bengal Movement
- 2.2 Socio-religious movements in other parts of India

Module 3: Rural Economy and Society

- 3.1 Impact of Colonial Land Revenue Settlements, Permanent Settlement in Operation and Commercialization of Agriculture and effect of rural indebtedness on the peasants.
- 3.2 Peasant response with special reference to the tribal dimension, taking Santhal, Oraon and Munda Revolts as examples.

Module 4: The Non-agrarian Sector

- 4.1 The process of Deindustrialization and the related debates.
- 4.2 Banking: indigenous and modern.
- 4.3 Emergence of modern industries—railway, jute, cotton and steel.

Module 5: Early Resistance to Colonial Rule

The Revolt of 1857: causes, interpretations and consequence.

Module 6: Colonial Intervention and Growth of Modern Education.

- 6.1 Differential impact, growth of a new intelligentsia, formation of early political organizations leading to the formation of the Indian National Congress.
- 6.2 Revivalist and reform movements
- 6.3 Women as recipients and agents of change in modern India with reference to women's writings (to be discussed along with some specific and prominent examples.)

UNIT-II: From 1885 to 1950 (50 marks; 40 lectures)

Module 1: Historiography of Indian Nationalism: Economic social and political trends up to 1919 as background:

- 1.1 Early Congress and rise of Extremism.
- 1.2 Partition of Bengal and the Swadeshi.
- 1.3 British response and Morley-Minto Reforms.
- 1.4 Revolutionaries in India and abroad.
- 1.5 Rise of Gandhi.

1.6 Trends in Muslim politics—Aligarh Movement, The Muslim League Demand for separate electorate, Lucknow Pact.

Module 2: The Gandhian Era.

- 2.1 Rowlatt Act and Rowlatt Satyagraha.
- 2.2 Montague Chelmsford Reforms.
- 2.3 Khilafat and Non-cooperation.
- 2.4 Simon Commission, Nehru Report and Round Table Conference.
- 2.5 Civil Disobedience.
- 2.6 Quit India Movement.

Module 3: New Trends in National Movement.

- 3.1 Role of social groups and classes including Dalits.
- 3.2 Ideological trends in the Congress.
- 3.3 Kisan Sabha Agitations and Trade Union Movements, Peoples' Movements. 3.4 Left Movements and the formation of the Communist Party abroad.
- 3.5 Subhas Chandra Bose and the INA.

Module 4: Pre-War Political Developments

- 4.1 Govt. of India Act 1935.
- 4.2 Working of the Provincial Ministries.
- 4.3 Cripps Mission, Wavell Plan and Cabinet Mission.

Module 5: Post War Upsurges

Module 6: Communal Politics and Partition

- 6.1 Growth of Hindu Fundamentalism and Muslim Separatism.
- 6.2 Demand for Pakistan, Response to the Demand.
- 6.3 National and Regional. British Policies
- 6.4 Partition and Independence
- 6.5 Integration of Princely States
- 6.6 Framing of the Indian Constitution.

Module 7: India from 1947-1964

- 7.1 Partition, Migration and Rehabilitation.
- 7.2 Agrarian Reforms. Tebhaga and Telengana.
- 7.3 Framing of the Indian Constitution and establishment of Parliamentary Democracy.
- 7.4 Making of Indian Foreign Policy and Non-Alignment.

Suggested Readings:

1. Banerjee, Sekhar, From Plassey to Partition, Orient Longman.
2. Brown, Judith: Gandhi's Rise to Power.
3. Chandra, Bipan, et. al., India's Struggle for Independence.
4. Chandra, Bipan, et. Al., India after Independence.
5. Desai, A. R. : Social Background to Indian Nationalism.
6. Sarkar Sumit: Modern India 1885 to 1947.
7. Sen, S.N, An Advanced History of Modern India, Macmillan, Kolkata, 2010.
8. Bandyopadhyay, Sekhar, Nationalist Movement in India: A Reader, OUP, 2009.
9. Bayly, C A., Indian Society and Making of the British Empire.
10. Brown, Judith, Gandhi and Civil Disobedience.
11. Chatterjee, Jaya, Bengal Divided: Hindu Communalism and Partition 1932-1947, O.U.P, 1994,
12. Dutta, R.P., India Today.
13. Gallagher, J., Johnson, G., Seal, A., Locality, Province and Nation.
14. Hutchins, F., Illusion of Permanence.
15. Joshi, P.C., Rammohun and the Forces of Modernisation in India.
16. McLane, J.R., Indian Nationalism and Early Congress.
17. Ravinder Kumar, Social History of Modern India.
18. Raychoudhuri, Tapan, (ed.) Indian Economy in the 19th Century: A Symposium.
19. Sarkar Sumit, Swadeshi Movement in Bengal.
20. Sarkar, Susobhan, Notes on Bengal Renaissance.
21. Sinha, N.K., (ed.) History of Bengal 1757-1905.
22. Stokes, Eric, Peasants and the Raj: Studies in Agrarian Society and Peasant Rebellion in Colonial India.
23. Stokes, Eric, The English Utilitarians in India.
24. Tripathi, Amal, The Extremist Challenge.

শেখর বন্দ্যোপাধ্যায়, পলাশি থেকে পটিশান (From Plassey to Partition,), ওরিয়েন্ট লংম্যান,

বিপান চন্দ্র এবং অন্যান্য, ভারতের স্বাধীনতা সংগ্রাম,(India's Struggle for Independence.) কে পি,
বাগচি এন্ড কোং, কলকাতা

বিপান চন্দ্র এবং অন্যান্য, . ভারতবর্ষ : স্বাধীনতার পরে,(India after Independence), আনন্দ
পাবলিশার্স, কলকাতা.

এ.আর.দেশাই, ভারতীয় জাতীয়তাবাদের সামাজিক পটভূমি, (Social Background to Indian
Nationalism) কে পি, বাগচি এন্ড কোং, কলকাতা.

সুমিত সরকার, আধুনিক ভারত, (Modern India 1885 to 1947) কে পি, বাগচি এন্ড কোং, কলকাতা

জয়া চ্যাটার্জী, বাংলা ভাগ হোল : হিন্দু সাম্প্রদায়িকতা ও দেশ-বিভাগ, ১৯৩২-১৯৪৭, (Bengal Divided: Hindu Communalism and Partition 1932-1947) এল আলমা পাবলিকেশনস, কলকাতা, ২০০৩

রজনী পাম দত্ত, আজিকার ভারত (India Today)

সুশোভন সরকার, বাংলার রেনেসাস, (Notes on Bengal Renaissance) দীপায়ন, কলকাতা .

অমলেশ ত্রিপাঠী, ভারতের মুক্তিসংগ্রামে চরমপন্থী পর্ব, (The Extremist Challenge) আনন্দ পাবলিশার্স, কলকাতা.

হীরেন্দ্রনাথ মুখোপাধ্যায়, ভারতবর্ষের ইতিহাস (২য় খন্ড) (মুঘল ও ব্রিটিশ ভারত) পশ্চিমবঙ্গ রাজ্য পুস্তক পর্ষৎ, ৪র্থ মুদ্রণ : নভেম্বর ১৯৯৮.

নিখিল সুর, ভারতীয় জাতীয়তাবাদী আন্দোলনের পটভূমি, পশ্চিমবঙ্গ রাজ্য পুস্তক পর্ষৎ,

প্রকাশকাল : জুলাই ১৯৮৯.

প্রণবকুমার চট্টোপাধ্যায়, আধুনিক ভারত (১৮৫৮-১৯২০)(১ম খন্ড) পশ্চিমবঙ্গ রাজ্য পুস্তক পর্ষৎ, ৪র্থ সংস্করণ : জুলাই ১৯৯৮.

প্রণবকুমার চট্টোপাধ্যায়, আধুনিক ভারত (১৯২০-১৯৪৭)(২য় খন্ড) পশ্চিমবঙ্গ রাজ্য পুস্তক পর্ষৎ, ৪র্থ সংস্করণ : জুলাই ১৯৯৯.

কান্তিপ্রসন্ন সেনগুপ্ত আধুনিক ভারত (১৭৬৫-১৮৫৮)(৩য় খন্ড) পশ্চিমবঙ্গ রাজ্য পুস্তক পর্ষৎ, প্রকাশকাল : মে ১৯৯৩.

সুনীল সেন, ভারতে কৃষিসম্পর্ক (১৭৯৩-১৯৪৭) (Agrarian Relations in India (1793-1947)), পশ্চিমবঙ্গ রাজ্য পুস্তক পর্ষৎ, প্রকাশকাল : জুলাই ১৯৮৫.

অমলেন্দু দে, বাঙালী বুদ্ধিজীবী ও বিচ্ছিন্নতাবাদ - অমলেন্দু দে, পশ্চিমবঙ্গ রাজ্য পুস্তক পর্ষৎ, পর্ষৎ সংস্করণের দ্বিতীয় মুদ্রণ : জুলাই ১৯৯১.

অমলেশ ত্রিপাঠী, স্বাধীনতা সংগ্রামে ভারতের জাতীয় কংগ্রেস, আনন্দ পাবলিশার্স, কলকাতা.

বিপান চন্দ্র, আধুনিক ভারত: ঔপনিবেশিকতাবাদ ও জাতীয়তাবাদ, কে পি, বাগচি এন্ড কোং, কলকাতা

বিনয় ভূষণ চৌধুরী, ঔপনিবেশিক আমলে বাংলার কৃষি ইতিহাস
অরুণ দাশগুপ্ত সম্পাদিত, অবশিল্পায়ন বিতর্ক
দিলীপ কুমার বিশ্বাস, রামমোহন সমীক্ষা
সব্যসাচী ভট্টাচার্য, ঔপনিবেশিক ভারতের অর্থনীতি, আনন্দ পাবলিশার্স, কলকাতা.
ভবানী প্রসাদ চট্টোপাধ্যায়, দেশভাগ: পশ্চাত ও নেপথ্য কাহিনী.

PAPER VII

History of Europe from 1789 to 1919

UNIT-I (50 marks; 40 lectures)

Module 1

- 1.1 Understanding the 18th century Europe
- 1.2 Enlightened despotism
- 1.3 Socio – economic and political background of the French Revolution – philosophers.

Module 2

- 2.1 Trends in the French Revolution
- 2.2 Aristocratic revolt – bourgeois popular and peasant revolt
- 2.3 The Constituent assembly and its achievements
- 2.4 Girondins and Jacobins – the Reign of Terror and the rise and fall of the Jacobin Republic
- 2.5 The Thermidorian reaction and the Directory
- 2.6 Interpreting the French Revolution

2.7 Role of women in French Revolution

Module 3

3.1 Napoleon Bonaparte: the revolution legacy

3.2 The reorganization of France and Europe – fall of Bonaparte

3.3 Conflicting estimation of Napoleon's character and achievements.

Module 4

4.1 The Vienna Congress

4.2 Metternich and the Conservative order

4.3 An overview of the revolution of 1830 and 1848

4.4 Pattern of insurrection in France and other central European countries – collapse of the revolution.

Module 5

5.1 The emergence of nation states in Central Europe

5.2 Unification of Italy and Germany

5.3 Russian modernization

5.4 France under the Second Empire.

UNIT-II (50 marks; 40 lectures)

Module 1

1.1 Industrialisation in Europe – difference in the industrialization process between

England and the Continent – France, German and Russian industrialization

1.2 Rise of the working class movements and the Socialist thought (Utopian

Socialism, Marxism)

1.3 Art and culture, literature and Science of the 18th century Europe with special

reference to Romanticism and its cultural and political aspects.

Module 2

2.1 The Third Republic, Paris Commune and the new German Reich

2.2 Europe in 1871 – Bismarckian diplomacy – new balance of power – Kaiser William II and the new course in the German foreign policy.

Module 3

The eastern question in later 19th century with reference to the Crimean War and the Balkan Nationalism.

Module 4

4.1 Age of imperialism (1871 – 1914) –The impetus behind colonial expansion –

Scramble for colonies.

4.2 Anglo German antagonism – Triple Alliance – Triple Entente and the emergence

of two armed camps – origin of the First World War.

Module 5

5.1 The impact of the War on the old order – Collapse of the Dynastic empire –

5.2 Revolution in Russia – origin of the October Revolution and the Success of the Bolsheviks

5.3 Fourteen points of Wilson.

Suggested Readings

1. Blanning, T.C.W, The French Revolution: Class War or Culture Clash.
2. Cobban, Alfred, History of Modern France, Vol. 1-3.
3. Cipolla, C.M, Fontana Economic History of Europe, Vol. III (The Industrial Revolution), Vol. 4 (Part 1 & 2).
4. Doyle, William, Origins of the French Revolution.
5. Droz, Jacques, Europe Between Revolutions.
6. Ellis, G, The Napoleonic Empire.
7. Evans, J, The Foundations of a Modern State in 19th Century Europe.
8. Hamerow, T.S, Restoration, Revolution and Reaction: Economics and Politics in Germany (1815-1871).
9. Hobsbawm, E.J, Nation and Nationalism.
10. Hobsbawm, E.J, Age of Revolution.
11. Hobsbawm, E.J, Age of Empire.
12. Hobsbawm, E.J, Age of Capital.
13. Hufton, Olwen, Europe: Privilege and Protest,.
14. Joll, James, Europe Since 1870.
15. Joll, James, Origins of the First World War.
16. Koch, H.W (ed), The Origins of the First World War.
17. Lefebvre, Georges, Coming of the French Revolution.
18. Lichtheim, George, A Short History of Socialism.
19. Lynn Hunt, Policies, Culture and Class in the French Revolution.
20. Porter, Andrew, European Imperialism, 1860-1914.
21. Riasanovsky, N.V, A History of Russia.
22. Roberts, J.M, Europe 1880-1945.
23. Rude, George, Revolutionary Europe.
24. Taylor, A.J.P, The Struggle for Mastery in Europe.
25. Thomson, David, Europe Since Napoleon.

26. Watson, Seton, The Russian Empire.
27. Wood, Anthony, History of Europe, 1815-1960.
28. Lyon Martin, Napoleon Bonaparte & the Legacy of the French Revolution.
29. Calleo, D, German Problem Reconsidered.

১। গৌতম চট্টোপাধ্যায় সম্পাদিত, ফরাসি বিপ্লব : দু'শো বছরের আলোকে, পশ্চিমবঙ্গ ইতিহাস সংসদ, কলকাতা, ১৯৮৯.

২। প্রফুল্ল চক্রবর্তী, ফরাসি বিপ্লব : পশ্চিমবঙ্গ রাজ্য পুস্তক পর্ষৎ, কলকাতা

৩। সুভাষ রঞ্জন চক্রবর্তী, ইউরোপের ইতিহাস, পশ্চিমবঙ্গ রাজ্য পুস্তক পর্ষৎ, কলকাতা, ১৯৮৬.

৪। টি.এ.জ্যাকসন, ফরাসি বিপ্লব : দশ দিগন্ত, কে পি, বাগচি এন্ড কোং, কলকাতা, ২০০৪.

৫। ডেভিড টমসন - বিশ্ব ইতিহাসের প্রেক্ষাপটে ইউরোপ। ১ম খন্ড (১৭৮৯-১৮৫০), ২য় খন্ড (১৮৫১-১৯১৪) প্রোগ্রেসিভ পাবলিশার্স, কলকাতা, ২০০২ & ২০০৩

৬। রাধারমণ চক্রবর্তী ও সুকল্যা চক্রবর্তী, সমসাময়িক আন্তর্জাতিক সম্পর্ক, প্রোগ্রেসিভ পাবলিশার্স, কলকাতা।

PAPER VIII

World Politics in the 20th Century from 1919 to C2000

UNIT-I (50 marks; 40 lectures)

Module 1

1.1 The Versailles Settlement of 1919

1.2 The League of Nations

1.3 Efforts outside the League to preserve peace and security: The Locarno treaty, the Kellogg Briand Pact

Module 2

- 2.1 The reparation issue and its impact on international relations
- 2.2 The Great Depression and its international repercussions
- 2.3 European Dictatorships: Origin of Fascism in Italy and Nazism in Germany –
Impact on world politics

Module 3

- 3.1 Responsibility of Hitler for the outbreak of Second World War
- 3.2 Diplomatic background of the Second World War – Policy of Appeasement –
the Munich Pact – Nazi-Soviet Non Aggression Pact.
- 3.3 The Spanish Civil War.

Module 4

- 4.1 Background of the foundation of UNO
- 4.2 Debate on the origins and nature of the Cold War.
- 4.3 Cold War and the emergence of Soviet and American economic and military
alliances: NATO, WTO, IMF, World Bank, Warsaw, COMECON

Module 5

- 5.1 USSR's relation with the East European countries (1945-64)
- 5.2 The US foreign policy in the Post war period: Truman Doctrine and Marshall
Plan

UNIT-I (50 marks; 40 lectures)

Module 1

- 1.1 Bi-polarism and regional conflicts: War in Korea – Crisis in Cuba – Conflict in
the Middle East (Arab – Israel wars of 1948-49, 67, 1973 – Activities of P.L.O-
Intifadah – Gulf War of 1990-91)
- 1.2 Disintegration of European Empires and the emergence of the Third World
- 1.3 The Non-Aligned Movement

1.4 The politics of Détente.

Module 2

2.1 Impact of the emergence of Communist China on world politics

2.2 Sino- Soviet relations

2.3 Sino- U.S. relations

Module 3

3.1 Indo-Pakistan relations

3.2 India and the liberation war of Bangladesh

3.3 The Liberation Struggle of Vietnam (1945-54 and 1954-1975)

Module 4

4.1 Reunification of Germany

4.2 The end of Socialist regime and the disintegration of USSR

Module 5

5.1 The end of the Cold War

5.2 The onset of Globalisation

5.3 American Uni-polarism and its significance for international politics.

Suggested Readings

1. C.Brown & J.Mooney, cold war to Détente 1945-83 (Heinemann 1984)
2. Chain Herzog, The Arab Israeli war (Vintage Books 1981)
3. D.Mitchell, The Spanish Civil War (Glanada 1972)
4. E.H.Carr, International Relations between the Two World Wars.
5. Eric Hobsbawm, Age of Extremes: The Short Twentieth Century 1914-1991
6. F. Mc Donough, The origins of the first and second world war (Cambridge 1970)
7. G.Lundstedt, East West North South: Major Developments in International Politics Since 1945 (Oxford 1999)
8. Gordon Martin, The origins of the Second world war Reconsidered (London Unwin Hyman 1986)
9. H.Higgins, Vietnam (Heinemann 1978)
10. J.Bhagwati, In Defence of Globalization (Oxford 2004)
11. J.Gaddis, We now know: Rethinking Cold war History (Oxford 1998)
12. J.N.Dixit, Across Borders: Fifty years of Indian's foreign Policy (Picus Books) 1998.
13. J.Stiglitz, Globalization and its Discontents (Penguin 2002).
14. Karuna Kaushik, History of Communist Russia 1917-1991 New Delhi Macmillan 2006.
15. Lipyong J.Kim, The Strategic Triangle: China, the United States and the Soviet Union 1987

16. M. Boemeke, G.D. Feldman and G. Elizabeth (eds.) The Treaty of Versailles: A reassessment after 75 years (Cambridge 1998)
17. M.E.Yapp, The Middle East Since the First world war. (Longman 1991)
18. M.Hastings, The Korean War (Pan1988)
19. O.Leorose and Richard Sisson, War and Secession: Pakistan, India and the creation of Bangladesh (Berkeley 1990)
20. P. Calvocoressi, World since 1945 (Pearson India 2004)
21. P.Fearon, The origins and Nature of the Great Slump 1929-32 (London Mac millan 1979).
22. R.F.Belts, Decolonization (Rutledge 1998)
23. Richard Thurlow, Fascism (Cambridge 1991)
24. Ruth Henig, the weimer Republic (Rutledge 1998)
25. Ruth Henig, Versailles and after 1919-1933, Lon Matheun 1984.
26. S.J.Lee, European Dictatorships 1918-1945, Rutledge 1987
27. S.R. Gibbons & P. Morisan, The League of Nations and UNO (London 1970)
28. Sumit Ganguli, the Origine of war in south Asia: Indo Pakistan Conflicts Since 1947.
29. W.C. Mc. Willams and H. Piotrowski, The World since 1945 – A History of International Relations (Lynne Rienner 1997)
30. William R. Keylor, The Twentieth Century World – An international History (Oxford 2001)
31. M.Mamoon & Jayanta Kumar Ray, Civil Society in Bangladesh Resitenceand Retreat, Kolkata 1996

১. ই. এইচ. কার, দুই বিশ্বযুদ্ধ মধ্যবর্তীকালীন আন্তর্জাতিক সম্পর্কের ইতিহাস, কলকাতা।
২. জয়ন্তকুমার রায় - গণতন্ত্র এবং জাতীয়তার অগ্নিপরীক্ষা, বাংলাদেশ, ১৯৪৭-১৯৭১
অ্যালায়েড পাবলিশার্স, কলকাতা
৩. রাখারমণ চক্রবর্তী ও সুকল্পা চক্রবর্তী, সমসাময়িক আন্তর্জাতিক সম্পর্ক, প্রোগ্রেসিভ
পাবলিশার্স, কলকাতা।

Question Pattern in Honours:

20 x 3 } 4 Questions from Unit I
 4 Questions from Unit II
 Taking not more than 1 question
 From any single module

Students have to answer 3
 questions taking at least 1 from
 each unit.

10 x 1 3 Questions from Unit I

10 x 1 3 Questions from Unit II

5 x 2 5 Questions from Unit I

5 x 2 5 Questions from Unit II

History General

Paper I

Ancient & Medieval Indian History upto 1556

Unit – I

Module – 1

- 1.1 Literary and Archaeological sources of Ancient and Medieval Indian History.
- 1.2 Historical understanding of the rise and decline of the Indus Vally Civilization.

Module – 2

- 2.1 Political Developments: Indian Polity in early and later vedic times.
- 2.2 The Mahajanapadas – The rise and fall of the Maurya Empire.
- 2.3 The Satavahana and Kushana rule.

Module – 3

- 3.1 The Imperial Guptas – regional powers and the struggle for power in North India.
- 3.2 Political developments in South India

Module – 4

Society, religion and economy of Ancient and Early medieval India, (A broad overview) with special reference to the position of women, trade and commerce, crafts and guilds debate on feudalism.

Module – 5

5.1 Art, Architecture, Science, Literature and culture of Ancient and early medieval India.

Unit – II

Module – 1

- 1.1 Impact of Islam and Political changes in India. A brief overview of the Delhi Sultanate, its administrative machinery
- 1.2 Theory of Kingship
- 1.3 Independent Sultans of Bengal.

Module – 2

Society, Religion, Culture and Economy of the Delhi Sultanate (A broad overview).

Module – 3

- 3.1 Disintegration of the Sultanate
- 3.2 Foundation of Mughal Empire.

Module – 4

- 4.1 Mughal-Afghan Conflict
- 4.2 Sher shah as an empire builder and an administrator.

Module – 5

Akbar and the consolidation of the Mughal Empire.

Suggested Readings (for History General Paper I)

- 1) H.C. Roychaudhury, K.K. Dutta, R.C. Majumdar, Advanced History of India
- 2) N.K. Sinha & N.R. Ray, History of India
- 3) Satish Chandra, Medieval India.
- 4) Ram Saran Sharma, Ancient India
- 5) S.N.Sen, Advanced History of Ancient and Medieval India

Paper-II

Indian History from 1556 to 1947

Unit-1

Module -1

- 1.1 Akbar and the Political expansion of Mughal Empire.
- 1.2 Akbar's relation with the Rajputs.
- 1.3 Evolution of Akbar's religious policy.

Module -2

- 2.1 The Manasabdari System and the emergence of a composite ruling class.
- 2.2 Expanding frontiers of Mughal Empire in post-Akbar India.

Module -3

- 3.1 Climax and crisis of the Mughal Empire under Aurangzeb: Aurangzeb's entanglements in the Deccan .
- 3.2 Rise of Shivaji and the Mughal –Maratha Contest for supremacy.
- 3.3** Changes in the Rajput policy and the religious policy of the Mughals in the reign of Aurangzeb.

Module -4

- 4.1 Mughal economy: land revenue - commercial expansion.

4.2 Mughal art and architecture.

4.3 Historiographical debate on the break up of the Mughal Empire .

Module -5

5.1 Political ascendancy of the English East India Company in Bengal (1757-65)

5.2 English East India Company's relation with the Indian states – Marathas, Mysore , Sikhs .

5.3 British policies of colonial annexation – subsidiary alliance, Doctrine of Lapse.

Unit-2

Module -1

1.1 Colonial economy: Land revenue settlements - Bengal, North India, South and west India.

1.2 Drain of wealth.

1.3 De-industrialization.

Module -2

2.1 English education in Bengal up to 1857.

2.2 Indian response to westernization: Raja Ram Mohan Roy – Young Bengal, Vidyasagar - Prarthana Samaj - Arya Samaj .

2.3 Aligarh movement and the modernization of Islam.

Module -3

3.1 Early resistance to colonial rule: Wahabi and Faraizi movements – Santal rebellion.

3.2 The revolt of 1857.

3.3 Growth of National Consciousness: Politics of Association - The Birth of Indian National Congress.

Module -4

4.1 The nature of early Congress under moderate leadership.

4.2 Ideology and programme of militant nationalists.

4.3 The Swadeshi movement.

4.4 The birth of All India Muslim League.

4.5 Revolutionary terrorism in Bengal and Punjab.

4.6 Impact of the First World War on Indian economy, society and polity.

Module -5

- 5.1 Gandhi and Indian National Movement: Rise of Gandhi - Rowlatt Satyagraha - Khilafat - Non-Cooperation - Civil Disobedience and Quit India Movement.
- 5.2 Nationalist Revolutionary Movements.
- 5.3 Subhas Chandra Bose, the Indian National Army and the Indian Freedom Movement.
- 5.4 Post war upsurge and the different strands of protest politics.
- 5.5 Communal Politics culminating in the partition and transfer of power.

Suggested Reading

1. Irfan Habib, Medieval India: The study of a civilization.
2. Satish Chandra, Medieval India Part Two Mughal Empire.
3. Sekhar Bandopadhyaya, From Plassey to Partition.
4. Sumit Sarkar, Modern India 1885 – 1947.
5. Bipan Chandra, India's Struggle for Independence

Paper III

Modern Europe from 1789 to 1939 A.D.

Unit – I

Module – 1

- 1.1 Background –
- 1.2 Renaissance and Reformation
- 1.3 Geographical Discoveries
- 1.4 Scientific Revolution, Advent of Capitalism (A brief overview)

Module – 2

- 2.1 The French Revolution – socioeconomic background: Role of the philosophers.
- 2.2 Progress of the Revolution: Popular Movements: Jacobins and Girondins.

Module – 3

- 3.1 Rise of Napoleon: Internal Reconstruction
- 3.2 Napoleon and Europe. Napoleon and revolution.

Module – 4

- 4.1 Political Developments in Europe from (1815 – 1870)

4.2 Triumph of conservatism – The Matternich System Stages of Italian Unification

4.3 Unification and Consolidation of Germany

4.4 Russia: Attempts at Reforms by Alexander II.

Module – 5

5.1 Society and Economy in Nineteenth Century Europe

5.2 Industrial Advances in England and the Continent

5.3 Utopian Socialism and Marxism

5.4 Art, Culture, Literature and Science.

Unit – II

Module – 1

Europe between 1871-1914: New Balance of Power, scramble for colonies in asia and Africa.

Module – 2

The Eastern Question: Main Issues – Crimean War, Balkan Nationalism (A brief overview)

Module – 3

3.1 Triple Alliance, Triple Entente and the emergence of two armed camps;

3.2 Origins of the First World War – Issues and Stakes;

3.3 Russian Revolution of 1917.

Module – 4

4.1 Peace settlement of 1919: Its long term consequences

4.2 Birth of the German Republic.

Module – 5

5.1 Europe in the Inter War period (1919-1939).

5.2 Consolidation of economic and political power of the Soviet State;

- 5.3 Rise of Fascism in Italy;
- 5.4 Rise of Nazism in Germany; Aggressive foreign politics;
- 5.5 Outbreak of the second World War.

Suggested Readings

- 1) Ketelbey, History of Modern Times.
- 2) David Thomson, Europe Since Napoleon.
- 3) Norman Lowe, Mastering the Modern World.

Paper IV

India and the World

UNIT-I: INDIA 1947 – 1964

Module-1

- 1.1 Understanding the causes of the partition of India .
- 1.2 Impact of Partition on Indian polity, economy , society and culture .

Module-2

- 2.1 Adoption of a republican constitution in 1950 : Salient features of the Indian Constitution.
- 2.2 Nehru and the development of Parliamentary democracy in India .

Module-3

Economic Planning : First three five year plans .

Module-4

Social movements in contemporary India .

Module-5

- 5.1 Indo-Pakistan relations .
- 5.2 India and the Non-Aligned Movement .

UNIT-II: WORLD 1945 – 1991

Module-1

Debate on the origins of the cold war.

Module-2

- 2.1 Cold war and the emergence of the U.S and Soviet military and economic alliances – NATO , IMF , WARSAW , WTO .
- 2.2 U.S. Foreign policy in the post-war period; Truman Doctrine and Marshall Plan .

Module-3

- 3.1 Bipolarism and regional conflicts :
- 3.2 War in Korea
- 3.3 Conflict in the Middle East: Arab-Israel War of 1948-49 , 1967 , 1973 .

Module-4

- 4.1 Impact of the emergence of China on the Worlds Politics.
- 4.2 Sino-Indian relations.

Module-5

- 5.1 India and the liberation war of Bangladesh.
- 5.2 The liberation struggle of Vietnam (1954-75).

Module-6

End of the socialist regime and the disintegration of U.S.S.R.

Suggested Reading

1. Bipin Chandra and the others ed, India After Independence 1947- 2000 .
2. Sugata Bose and Ayesha Jalal, Modern South Asia History , Culture , Political Economy .
3. Mushirul Hasan ed, India's Partition Process , Strategy and Mobilization .
4. Mushirul Hasan ed, India's Partitined .The Other Face of Freedom 2 Volumes .
5. Jaya Chatterjee, Spoils of Partition , The Bengal and India 1947-67 .
6. P.Calvocoressi, World since 1945 .
7. W.R.Keylor, The 20th century World : An International History .

Question Pattern in General:

2 x 10 from 10 Questions

5 x 4 from 8 Questions

20 x3 from 8 Questions

UNIVERSITY OF CALCUTTA

SYLLABI

**F
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**THREE-YEAR HONOURS & GENERAL
DEGREE COURSES OF STUDIES**



**MATHEMATICS
2010**

UNIVERSITY OF CALCUTTA

Syllabi of three-year B.Sc.(Hons. & Genl.) Courses in Mathematics, 2010

MATHEMATICS HONOURS

PAPER-WISE DISTRIBUTION:

Paper I	: Module I	and	Module II
Paper II	: Module III	and	Module IV
Paper III	: Module V	and	Module VI
Paper IV	: Module VII	and	Module VIII
Paper V	: Module IX	and	Module X
Paper VI	: Module XI	and	Module XII
Paper VII	: Module XIII	and	Module XIV
Paper VIII	: Module XV	and	Module XVI

MATHEMATICS HONOURS

DISTRIBUTION OF MARKS

MODULE I	: Group A : Classical Algebra (35 marks) Group B : Modern Algebra I (15 marks)
MODULE II	: Group A : Analytical Geometry of Two Dimensions (20 marks) Group B : Analytical Geometry of Three Dimensions I (15 marks) Group C : Vector Algebra (15 marks)
MODULE III	: Group A : Analysis I (40 marks) Group B : Evaluation of Integrals (10 marks)
MODULE IV	: Group A : Linear Algebra (35 marks) Group B : Vector Calculus I (15 marks)

- MODULE V** : **Group A** : Modern Algebra II (15 marks)
Group B : Linear Programming and Game Theory (35 marks)
- MODULE VI** : **Group A** : Analysis II (15 marks)
Group B : Differential Equations I (35 marks)
- MODULE VII** : **Group A** : Real-Valued Functions of Several Real Variables (30 marks)
Group B : Application of Calculus (20 marks)
- MODULE VIII** : **Group A** : Analytical Geometry of Three Dimensions II (15 marks)
Group B : Analytical Statics I (10 marks)
Group C : Analytical Dynamics of A Particle I (25 marks)
- MODULE IX** : **Group A** : Analysis III (50 marks)
- MODULE X** : **Group A** : Linear Algebra II and Modern Algebra II (20 marks)
Group B : Tensor Calculus (15 marks)
Group C : Differential Equation II (15 marks)
Or
Group C : Graph Theory (15 marks)
- MODULE XI** : **Group A** : Vector calculus II (10 marks)
Group B : Analytical Statics II (20 marks)
Group C : Analytical Dynamics of A Particle II (20 marks)
- MODULE XII** : **Group A** : Hydrostatics (25 marks)
Group B : Rigid Dynamics (25 marks)
- MODULE XIII** : **Group A** : Analysis IV (20 marks)
Group B : Metric Space (15 marks)
Group C : Complex Analysis (15 marks)
- MODULE XIV** : **Group A** : Probability (30 marks)
Group B : Statistics (20 marks)
- MODULE XV** : **Group A** : Numerical Analysis (25 marks)
Group B : Computer Programming (25 marks)
- MODULE XVI** : Practical (50 marks) $\left\{ \begin{array}{l} \text{Problem : 30} \\ \text{Sessional Work : 10} \end{array} \right.$

Module I

Group A (35 marks)

Classical Algebra

1. Statements of well ordering principle, first principle of mathematical induction, second principle of mathematical induction. Proofs of some simple mathematical results by induction. Divisibility of integers. The division algorithm ($a = gb + r$, $b \neq 0$, $0 \leq r < b$). The greatest common divisor (g.c.d.) of two integers a and b . [This number is denoted by the symbol (a,b)]. Existence and uniqueness of (a,b) . Relatively prime integers. The equation $ax + by = c$ has integral solution iff (a,b) divides c . (a , b , c are integers). Prime integers. Euclid's first theorem: If some prime p divides ab , then p divides either a or b .
Euclid's second theorem: There are infinitely many prime integers.
Unique factorization theorem. Congruences, Linear Congruences.
Statement of Chinese Remainder Theorem and simple problems. Theorem of Fermat. Multiplicative function ϕ (n).
[15]
2. Complex Numbers : De-Moivre's Theorem and its applications, Exponential, Sine, Cosine and Logarithm of a complex number. Definition of a^z ($a \neq 0$). Inverse circular and Hyperbolic functions.
[8]
3. Polynomials with real co-efficients: Fundamental theorem of Classical Algebra (statement only). The n -th degree polynomial equation has exactly n roots. Nature of roots of an equation (surd or complex roots occur in pairs). Statements of Descartes' rule of signs and of Sturm's Theorem and their applications. Multiple roots. Relation between roots and coefficients. Symmetric functions of roots. Transformation of equations. [8]
4. Polynomial equations with real co-efficients : Reciprocal equations. Cardan's method of solving a cubic equation. Ferrari's method of solving a biquadratic equation. Binomial equation. Special roots.
[7]

5. Inequalities $AM \geq GM \geq HM$ and their generalizations : the theorem of weighted means and m-th. Power theorem. Cauchy's inequality (statement only) and its direct applications. [8]

Group B (15 marks)

Modern Algebra I

1. **Set, mapping and algebraic structure:** Basic properties of sets including De Morgan's Laws. Cartesian product of sets, Binary relation, Equivalence relation, Relation between equivalence relation and partition. Congruence of integers, Congruence Classes.
 Mapping: Injection, surjection, bijection, identity and inverse mappings.
 Composition of mappings and its associativity.
 Binary operations: Commutative and Associative binary operations.
 Algebraic structure: Concept of algebraic structure, definition (only) of group, ring and field – Real numbers with usual operations as an example. [10]

2. **Group Theory:** Semigroup, Group, Abelian Group. Examples of groups from number system, root of unity, matrices, symmetries of squares, triangles etc. Groups of congruence classes. Klein's 4 group.
 Properties deducible from definition of group including solvability of equations like $ax = b$, $ya = b$. Any finite semigroup having both cancelation laws is a group.
 Integral power of elements and laws of indices in a group. Order of an element of a group, Order of a group.
 Subgroups: Necessary and sufficient condition for a subset of group to be a subgroup. Intersection and union of subgroups. Necessary and sufficient condition for union of two subgroups to a subgroup. [10]
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Module II

Group A (20 marks)

Analytical Geometry of Two Dimensions

1. (a) Transformation of Rectangular axes : Translation, Rotation and their combinations.
Theory of Invariants.
[2]

(b) General Equation of second degree in two variables : Reduction into canonical form.
Classification of conics, Lengths and position of the axes.
[2]
2. Pair of straight lines : Condition that the general equation of second degree in two variables may represent two straight lines. Point of intersection of two intersecting straight lines. Angle between two lines given by $ax^2 + 2hxy + by^2 = 0$. Angle bisector. Equation of two lines joining the origin to the points in which a line meets a conic. [8]
3. Polar equation of straight lines and circles. Polar equation of a conic referred to a focus as pole. Equations of tangent, normal, chord of contact.
[5]
4. Circle, Parabola, Ellipse and Hyperbola : Equations of pair of tangents from an external point, chord of contact, poles and polars, conjugate points and conjugate lines. [4]

Note: Euclid's Axiom and its Consequences.

Group B (15 marks)

Analytical Geometry of Three Dimensions I

1. Rectangular Cartesian co-ordinates in space. Halves and Octants. Concept of a geometric vector (directed line segment). Projection of a vector on a co-ordinate axis. Inclination of a vector with an axis. Co-ordinates of a vector. Direction cosines of a vector. Distance between two points. Division of a directed line segment in a given ratio. [4]

2. Equation of Plane: General form, Intercept and Normal form. The sides of a plane. Signed distance of a point from a plane. Equation of a plane passing through the intersection of two planes. Angle between two intersecting planes. Bisectors of angles between two intersecting planes. Parallelism and perpendicularity of two planes. [8]
3. Straight lines in space: Equation (Symmetric & Parametric form). Direction ratio and Direction cosines. Canonical equation of the line of intersection of two intersecting planes. Angle between two lines. Distance of a point from a line. Condition of coplanarity of two lines. Equations of skew-lines. Shortest distance between two skew lines. [10]

Group C (15 marks)

Vector Algebra

Vector Algebra : Vector (directed line segment) Equality of two free vectors. Addition of Vectors. Multiplication by a Scalar.

Position vector, Point of division, Conditions of collinearity of three points and co-planarity of four points.

Rectangular components of a vector in two and three dimensions.

Product of two or more vectors. Scalar and vector products, scalar triple products and Vector triple products. Product of four vectors.

Direct application of Vector Algebra in (i) Geometrical and Trigonometrical problems (ii) Work done by a force, Moment of a force about a point.

Vector equations of straight lines and planes. Volume of a tetrahedron. Shortest distance between two skew lines. [15]

Module III

Group A (40 marks)

Analysis I

1. Real number system :

- (a) Intuitive idea of numbers. Mathematical operations revisited with their

properties (closure, commutative, associative, identity, inverse, distributive). Sets and functions - definition and properties (union, intersection, complementation, injection, surjection, bijection). [3]

(b) Field Axioms. Concept of ordered field. Bounded set, L.U.B. (supremum) and G.L.B.

(infimum) of a set. Properties of L.U.B. and G.L.B. of sum of two sets and scalar multiple of a set. Least upper bound axiom or completeness axiom. Characterization of \mathbb{R} as a complete ordered field. Definition of an Archimedean ordered field. Archimedean property of \mathbb{R} . \mathbb{Q} is Archimedean ordered field but not ordered complete. Linear continuum. [6]

2. Sets in \mathbb{R} :

(a) Intervals. [1]

(b) Neighbourhood of a point. Interior point. Open set. Union, intersection of open sets.

Every open set can be expressed as disjoint union of open intervals (statement only).

[2]

(c) Limit point and isolated point of a set. Criteria for L.U.B. and G.L.B. of a bounded set

to be limit point of the set. Bolzano-Weierstrass theorem on limit point.

Definition of

derived set. Derived set of a bounded set A is contained in the closed interval

$[\inf A, \sup$

$A]$. Closed set. Complement of open set and closed set. Union and

intersection of closed

sets as a consequence. No nonempty proper subset of \mathbb{R} is both open and

closed. [3]

(d) Dense set in \mathbb{R} as a set having non-empty intersection with every open interval. \mathbb{Q}

and $\mathbb{R} - \mathbb{Q}$ are dense in \mathbb{R} .

[2]

3. Sequences of real numbers :

(a) Definition of a sequence as function from \mathbb{N} to \mathbb{R} . Bounded sequence.

Convergence

(formalization of the concept of limit as an operation in \mathbb{R}) and non-convergence. Examples. Every convergent sequence is bounded and limit is unique. Algebra of limits.

[4]

(b) Relation between the limit point of a set and the limit of a convergent sequence of distinct elements. Monotone sequences and their convergence. Sandwich rule. Nested interval theorem.

Limit of some important sequences : $\{n^{1/n}\}$, $\{x^n\}_n$, $\{x^{1/n}\}_n$, $\{x_n\}_n$ with $\frac{x_{n+1}}{x_n} \rightarrow 1$

and $|r| < 1$. $\{(1+1/n)^n\}$, $\left\{1 + \frac{1}{1!} + \frac{1}{2!} + \dots + \frac{1}{n!}\right\}_n$, $\{a^{x/n}\}_n$, ($a >$

0). Cauchy's first and second limit theorems. [7]

(c) Subsequence. Subsequential limits. Lim sup upper (limit) and lim inf (lower limit) of a sequence using inequalities. Alternative definitions of lim sup and lim inf of a

sequence $\{x^n\}_n$ using L.U.B. and G.L.B. of the set containing all the subsequential limits or by the properties of the set $\{x_n, x_{n+1}, \dots\}$ (Equivalence between these definitions are assumed). A bounded sequence $\{x_n\}$ is convergent if $\limsup x_n = \liminf x_n$ (statement only). Every sequence has a monotone subsequence.

Bolzano-Weierstrass theorem. Cauchy's general principle of convergence [5]

4. Countability of sets : Countability (finite and infinite) and uncountability of a set. Subset of a countable set is countable. Every infinite set has a countably infinite subset. Cartesian product of two countable sets is countable. Q is countable. Non-trivial intervals are uncountable. IR is uncountable. [4]

5. Continuity of real-valued functions of a real variable :

(a) Limit of a function at a point (the point must be a limit point of the domain set of the function). Sequential criteria for the existence of finite and infinite limit of a function at a point. Algebra of limits. Sandwich rule. Important limits like

$\frac{\sin x}{x}$, $\frac{\log(1+x)}{x}$, $\frac{a^x - 1}{x}$ ($a > 0$) as $x \rightarrow 0$.

[3]

- (b) Continuity of a function at a point. Continuity of a function on an interval and at an isolated point. Familiarity with the figures of some well known functions : $y = x^a$ ($a = 2, 3, \frac{1}{2}, -1$), $|x|$, $\sin x$, $\cos x$, $\tan x$, $\log x$, e^x . Algebra of continuous functions as a consequence of algebra of limits. Continuity of composite functions. Examples of continuous functions. Continuity of a function at a point does not necessarily imply the continuity in some neighbourhood of that point. [4]
- (c) Bounded functions. Neighbourhood properties of continuous functions regarding boundedness and maintenance of same sign. Continuous function on $[a, b]$ is bounded and attains its bounds. Intermediate value theorem. [4]
- (d) Discontinuity of function, type of discontinuity. Step function. Piecewise continuity. Monotone function. Monotone function can have only jump discontinuity. Set of points of discontinuity of a monotone function is at most countable. Monotone bijective function from an interval to an interval is continuous and its inverse is also continuous. [3]
- (e) Definition of uniform continuity and examples. Lipschitz condition and uniform continuity. Functions continuous on a closed and bounded interval is uniformly continuous. A necessary and sufficient condition under which a continuous function on a bounded open interval I will be uniformly continuous on I . A sufficient condition under which a continuous function on an unbounded open interval I will be uniformly continuous on I (statement only).

Group B (10 marks)

Evaluation of Integrals

Evaluation of Integrals : Indefinite and suitable corresponding definite integrals for the functions $\frac{1}{(a+b\cos x)^n}$, $\frac{l\cos x+m\sin x}{p\cos x+q\sin x}$, $\frac{1}{(x^2+a^2)^n}$, $\cos^m x$, $\sin^n x$ etc. where l, m, p, q, n are integers. Simple problems on definite integral as the limit of a sum. [5]

Module IV

Group A (35 marks)

Linear Algebra

1. Matrices of real and complex numbers : Algebra of matrices. Symmetric and skew-symmetric matrices. Hermitian and skew-Hermitian matrices. Orthogonal matrices.

[4]

2. Determinants: Definition, Basic properties of determinants, Minors and cofactors. Laplace's method. Vandermonde's determinant. Symmetric and skew-symmetric determinants. (No proof of theorems)(problems of determinants of order >4 will not be asked).

Adjoint of a square matrix. For a square matrix A , $A \cdot \text{adj}A - \text{adj}A \cdot A = (\det A)I_n$. Invertible matrix, Non-singular matrix. A square matrix is invertible if and only if it is non-singular. Inverse of an orthogonal. Matrix. [13]

3. Elementary operations on matrices. Echelon matrix. Rank of a matrix. Determination of rank of a matrix (relevant results are to be state only). Normal forms. Elementary matrices. Statements and application of results on elementary matrices. [4]

4. Vector / Linear space : Definitions and examples, Subspace, Union and intersection of subspaces. Linear sum of two subspaces. Linear combination, independence and dependence. Linear span. Generators of vector space. Finite dimensional vector space. Replacement Theorem, Extension theorem, Statement of the result that any two bases of a finite dimensional vector space have same number of elements. Dimension of a vector space. Extraction of basis, formation of basis with special emphasis on \mathbb{R}^n ($n \leq 4$).

Row space and column space of matrix. Row rank and column rank of matrix. Equality of row rank, column rank and rank of a matrix.

Linear homogeneous system of equations : Solution space. For a homogeneous system $AX = 0$ in n unknowns, $\text{Rank } X(A) + \text{Rank } A = n$; $AX = 0$ contains non-trivial solution if $\text{Rank } A < n$. Necessary and sufficient condition for consistency of a linear non-homogeneous system of equations. Solution of system of equations (Matrix method).

Eigenvalues and eigenvectors of matrices, Caley Hamilton Theorem. Simple properties of eigenvalues and eigenvectors. [25]

5. Congruence of matrices : Statement of applications of relevant results, Normal form of a matrix under congruence, Real Quadratic Form involving three variables. Reduction to Normal Form (Statements of relevant theorems and applications). [5]

6. Inner Product Space : Definition and examples, Norm, Euclidean Vector Space, Triangle inequality and Cauchy-Schwarz Inequality in Euclidean Vector Space, Orthogonality of vectors, Orthonormal basis, Gram-Schmidt Process of orthonormalization. [5]

Group B (15 marks)

Vector Calculus I

1. Vector differentiation with respect to a scalar variable, Vector functions of one scalar variable. Derivative of a vector. Second derivative of a vector. Derivatives of sums and products, Velocity and Acceleration as derivative. [5]
 2. Concepts of scalar and vector fields. Direction derivative. Gradient, Divergence and curl, Laplacian and their physical significance. [5]
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Module V

Group A (15 marks)

Modern Algebra II

1. Cosets and Lagrange's theorem. Cyclic groups. Generator, Subgroups of cyclic groups. Necessary and sufficient condition for a finite group to be cyclic.
2. Rings and Fields: Properties of Rings directly following from the definition, Unitary and commutative rings. Divisors of zero, Integral domain, Every field is an integral domain, every finite integral domain is a field. Definitions of Sub-ring and sub-field. Statement of Necessary and sufficient condition for a subset of a ring (field) to be sub-ring (resp. subfield). Characteristic of ring and integral domain.
Permutation : Cycle, transposition, Statement of the result that every permutation can be expressed as a product of disjoint cycles. Even and odd permutations, Permutation Group. Symmetric group. Alternating Group. Order of an alternating group. [20]

Group B (35 marks)

Linear Programming and Game Theory

1. Definition of L.P.P. Formulation of L.P.P. from daily life involving

inequations. Graphical solution of L.P.P. Basic solutions and Basic Feasible Solution (BFS) with reference to L.P.P. Matrix formulation of L.P.P. Degenerate and Non-degenerate B.F.S. [8]

2. Hyperplane, Convex set, Cone, extreme points, convex hull and convex polyhedron. Supporting and Separating hyperplane. The collection of all feasible solutions of an L.P.P. constitutes a convex set. The extreme points of the convex set of feasible solutions correspond to its B.F.S. and conversely. The objective function has its optimal value at an extreme point of the convex polyhedron generated by the set of feasible solutions. (the convex polyhedron may also be unbounded). In the absence of degeneracy, if the L.P.P. admits of an optimal solution then at least one B.F.S. must be optimal. Reduction of a F.S. to a B.F.S. [6]
3. Slack and surplus variables. Standard form of L.P.P. theory of simplex method. Feasibility and optimality conditions. [6]
4. The algorithm. Two phase method. Degeneracy in L.P.P. and its resolution. [6]
5. Duality theory : The dual of the dual is the primal. Relation between the objective values of dual and the primal problems. Relation between their optimal values. Complementary slackness, Duality and simplex method and their applications. [6]
6. Transportation and Assignment problems. Mathematical justification for optimality criterion. Hungarian method. Traveling Salesman problem. [8]
7. Concept of Game problem. Rectangular games. Pure strategy and Mixed strategy. Saddle point and its existence. Optimal strategy and value of the game. Necessary and sufficient condition for a given strategy to be optimal in a game. Concept of Dominance. Fundamental Theorem of Rectangular games. Algebraic method. Graphical method and Dominance method of solving Rectangular games. Inter-relation between the theory of Games and L.P.P. [10]

Module VI

Group A (15 marks)

Analysis II

1. Infinite Series of real numbers :

- a) Convergence, Cauchy's criterion of convergence. [1]
- b) Series of non-negative real numbers : Tests of convergence – Cauchy's condensation test. Comparison test (ordinary form and upper limit and lower limit criteria), Kummer's test. Statements and applications of : Abel – Pringsheim's Test, Ratio Test , Root test, Raabe's test, Bertrand's test, Logarithmic test and Gauss's test. [3]
- c) Series of arbitrary terms : Absolute and conditional convergence [1]
- d) Alternating series : Leibnitz test (proof needed).
- e) Non-absolute convergence : Abel's and Dirichlet's test (statements and applicatins). Riemann's rearrangement theorem (statement only) and rearrangement of absolutely convergent series (statement only). [3]

2. Derivatives of real –valued functions of a real variable :

- a) Definition of derivability. Meaning of sign of derivative. Chain rule. [2]
- b) Successive derivative : Leibnitz theorem. [1]
- c) Theorems on derivatives : Darboux theorem, Rolle's theorem, Mean value theorems of Lagrange and Cauchy – as an application of Rolle's theorem. Taylor's theorem on closed and bounded interval with Lagrange's and Cauchy's form of remainder deduced from Lagrange's and Cauchy's mean value theorem respectively. Maclaurin's theorem as a consequence of Taylor's theorem. Statement of Maclaurin's Theorem on infinite series expansion. Expansion of e^x , $\log(1+x)$, $(1+x)^m$, $\sin x$, $\cos x$ with their range of validity. [10]
- d) Statement of L' Hospital's rule and its consequences. Point of local extremum (maximum, minimum) of a function in an interval. Sufficient condition for the existence of a local maximum/minimum of a function at a point (statement only). Determination of local extremum using first order derivative. Application of the principle of maximum/minimum in geometrical problems. [4]

Group B (35 marks)

Differential Equation I

- 1. Significance of ordinary differential equation. Geometrical and physical consideration. Formation of differential equation by elimination of arbitrary

constant. Meaning of the solution of ordinary differential equation.
Concept of linear and non-linear differential equations.
[2]

2. Equations of first order and first degree : Statement of existence theorem. Separable, Homogeneous and Exact equation. Condition of exactness, Integrating factor. Rules of finding integrating factor, (statement of relevant results only). [5]
 3. First order linear equations : Integrating factor (Statement of relevant results only). Equations reducible to first order linear equations. [2]
 4. Equations of first order but not of first degree. Clairaut's equation. Singular solution.[3]
 5. Applications : Geometric applications, Orthogonal trajectories. [2]
 6. Higher order linear equations with constant co-efficients : Complementary function, Particular Integral. Method of undetermined co-efficients, Symbolic operator D. Method of variation of parameters. Exact Equation. Euler's homogeneous equation and Reduction to an equation of constant co-efficients.
[8]
 7. Second order linear equations with variable co-efficients :
$$\frac{d^2y}{dx^2} + P(x)\frac{dy}{dx} + Q(x)y = F(x)$$
 . Reduction of order when one solution of the homogeneous part is known. Complete solution. Method of variation of parameters. Reduction to Normal form. Change of independent variable. Operational Factors. [10]
 8. Simple eigenvalue problems. [2]
 9. Simultaneous linear differential equations. Total differential equation : Condition of integrability. [3]
 10. Partial differential equation (PDE) : Introduction. Formation of P.D.E., Solution of PDE by Lagrange's method of solution and by Charpit's method. [5]
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Module VII

Group A (30 marks)

Real-Valued Functions of Several Real Variables

1. Point sets in two and three dimensions: Concept only of neighbourhood of a point, interior point, limit point, open set, closed set. [2]
2. Concept of functions on \mathbb{R}^n . [1]
3. Function of two and three variables : Limit and continuity. Partial derivatives. Sufficient condition for continuity. Relevant results regarding repeated limits and double limits. [3]
4. Functions $\mathbb{R}^2 \rightarrow \mathbb{R}$: Differentiability and its sufficient condition, differential as a map, chain rule, Euler's theorem and its converse. Commutativity of the second order mixed partial derivatives : Theorems of Young and Schwarz. [10]
5. Jacobian of two and three variables, simple properties including function dependence. Concept of Implicit function : Statement and simple application of implicit function theorem for two variables Differentiation of Implicit function. [8]
6. Taylor's theorem for functions two variables. Lagrange's method of undetermined multipliers for function of two variables (problems only). [3]

Group B (20 marks)

Application of Calculus

1. Tangents and normals : Sub-tangent and sub-normals. Angle of intersection of curves. Pedal equation of a curve, pedal of a curve. [4]
2. Rectilinear asymptotes of a curve (Cartesian, parametric and polar form).

[3]

3. Curvature-Radius of curvature, centre of curvature, chord of curvature, evolute of a curve. [4]
4. Envelopes of families of straight lines and curves (Cartesian and parametric equations only). [4]
5. Concavity, convexity, singular points, nodes, cusps, points of inflexion, simple problems on species of cusps of a curve (Cartesian curves only). [5]
6. Familiarity with the figure of following curves : Periodic curves with suitable scaling, Cycloid, Catenary, Lemniscate of Bernoulli, Astroid, Cardioid, Folium of Descartes, equiangular spiral. [1]
7. Area enclosed by a curve, determination of C.G., moments and products of inertia (Simple problems only). [3]

Module VIII

Group A (15 marks)

Analytical Geometry of 3 Dimensions II

1. (a) Sphere : General Equation. Circle, Sphere through the intersection of two spheres. Radical Plane, Tangent, Normal. [3]
(b) Cone : Right circular cone. General homogeneous second degree equation. Section of cone by a plane as a conic and as a pair of lines. Condition for three perpendicular generators. Reciprocal cone. [5]
(c) Cylinder : Generators parallel to either of the axes, general form of equation. Right-circular cylinder. [2]
(d) Ellipsoid, Hyperboloid, Paraboloid : Canonical equations only. [1]
2. Tangent planes, Normals, Enveloping cone. [5]
3. Surface of Revolution (about axes of reference only). Ruled surface.

Generating lines
of hyperboloid of one sheet and hyperbolic paraboloid.
[10]

4. Transformation of rectangular axes by translation, rotation and their combinations. [2]

5. Knowledge of Cylindrical, Polar and Spherical polar co-ordinates, their relations (No deduction required).
[2]

Group B (10 marks)

Analytical Statics I

1. **Friction :** Law of Friction, Angle of friction, Cone of friction, To find the positions of equilibrium of a particle lying on a (i) rough plane curve, (ii) rough surface under the action of any given forces.
[4]
2. Astatic Equilibrium, Astatic Centre, Positions of equilibrium of a particle lying on a smooth plane curve under action of given force. Action at a joint in a frame work. [4]

Group C (25 marks)

Analytical Dynamics of A Particle I

Recapitulations of Newton's laws. Applications of Newton's laws to elementary problems of simple harmonic motion, inverse square law and composition of two simple harmonic motions. Centre of mass. Basic kinematic quantities : momentum, angular momentum and kinetic energy. Principle of energy and momentum. Work and power. Simple examples on their applications.

Impact of elastic bodies. Direct and oblique impact of elastic spheres. Losses of kinetic energy. Angle of deflection.

Tangent and normal accelerations. Circular motion. Radial and cross-radial accelerations.

Damped harmonic oscillator. Motion under gravity with resistance proportional to some integral power of velocity. Terminal velocity. Simple cases of a constrained motion of a particle.

Motion of a particle in a plane under different laws of resistance. Motion of a projectile in a resisting medium in which the resistance varies as the velocity. Trajectories in a resisting medium where resistance varies as some integral power of the velocity.

[25]

Module IX

Analysis III (50 marks)

1. Compactness in \mathbb{R} : Open cover of a set. Compact set in \mathbb{R} , a set is compact iff it is closed and bounded.
[2]
2. Function of bounded variation (BV) : Definition and examples. Monotone function is of BV. If f is on BV on $[a,b]$ then f is bounded on $[a,b]$. Examples of functions of BV which are not continuous and continuous functions not of BV. Definition of variation function. Necessary and sufficient condition for a function f to be of BV on $[a,b]$ is that f can be written as the difference of two monotonic increasing functions on $[a,b]$. Definition of rectifiable curve. A plane curve $\gamma = (f,g)$ is rectifiable if f and g both are of bounded variation (statement only). Length of a curve (simple problems only).
[8]
3. Riemann integration :
 - (a) Partition and refinement of partition of a closed and bounded interval. Upper Darboux sum $U(P,f)$ and lower Darboux sum $L(P,f)$ and associated results. Upper integral and lower integral. Darboux's theorem. Darboux's definition of integration over a closed and bounded interval. Riemann's definition of integrability. Equivalence with Darboux definition of integrability (statement only). Necessary and sufficient condition for Riemann integrability. [6]
 - (b) Continuous functions are Riemann integrable. Definition of a set of measure zero (or negligible set or zero set) as a set covered by countable number of open intervals sum of whose lengths is arbitrary small. Examples of sets of measure zero : any subset of a set of measure zero, countable set, countable union of sets of measure zero.

Concept of oscillation of a function at a point. A function is continuous at x if its oscillation at x is zero. A bounded function on a closed and bounded interval is Riemann integrable if the set of points of discontinuity is a set of measure zero (Lebesgue's theorem on Riemann integrable function). Problems on Riemann integrability of functions with sets of points of discontinuity having measure zero.

[5]

- (c) Integrability of sum, scalar multiple, product, quotient, modulus of Riemann integrable functions. Properties of Riemann integrable functions arising from the above results.

[3]

- (d) Function defined by definite integral $\int_a^x f(t)dt$ and its properties.

Antiderivative (primitive or indefinite integral).

[4]

- (e) Fundamental theorem of integral calculus. First mean value theorem of integral calculus. Statement of second mean value theorems of integrals calculus (both Bonnet's and Weierstrass' form).

[2]

4. Sequence and Series of functions of a real variable :

- (a) Sequence of functions defined on a set : Pointwise and uniform convergence. Cauchy criterion of uniform convergence. Dini's theorem on uniform convergence (statement only). Weierstrass's M-test.

[4]

- (b) Limit function : Boundedness, Repeated limits, Continuity, Integrability and differentiability of the limit function of sequence of functions in case of uniform convergence.

[5]

- (c) Series of functions defined on a set : Pointwise and uniform convergence. Cauchy criterion of uniform convergence. Dini's theorem on uniform convergence (statement only), Tests of uniform convergence – Weierstrass' M-test. Statement of Abel's and Dirichlet's test and their applications. Passage to the limit term by term.

[5]

- (d) Sum function : boundedness, continuity, integrability, differentiability of a series of functions in case of uniform convergence.

[2]

- (e) Power series: Cauchy-Hadamard theorem. Determination of radius of convergence. Uniform and absolute convergence of power series. Properties of sum function. Abel's limit theorems. Uniqueness of power series having sum function.

[8]

Module X

Group A (20 marks)

Linear Algebra II & Modern Algebra III

Section – I : Linear Algebra II (10 marks)

1. Linear Transformation (L.T.) on Vector Spaces : Definition of L.T., Null space, range space of an L.T., Rank and Nullity, Sylvester's Law of Nullity. [Rank (T) + Nullity (T) = dim (V)]. Determination of rank (T), Nullity (T) of linear transformation $T : \mathbb{R}^n \rightarrow \mathbb{R}^m$. Inverse of Linear Transformation. Non-singular Linear Transformation.
2. Linear Transformation and Matrices : Matrix of a linear transformation relative to ordered bases of finite-dimensional vector spaces. Correspondence between Linear Transformations and Matrices. Linear Transformation is non-singular if its representative matrix be non-singular. Rank of L.T. = Rank of the corresponding matrix. [5]

Section – II : Modern Algebra III (10 marks)

3. Normal sub-groups of a Group : Definition and examples. Intersection, union of normal sub-groups. Prefect of a normal sub-group and a sub-group. Quotient Group of a Group by a normal sub-group. [5]
4. Homomorphism and Isomorphism of Groups. Kernel of a Homomorphism. First Isomorphism Theorem. Properties deducible from definition of morphism. An infinite cyclic group is isomorphic to $(\mathbb{Z}, +)$ and a finite cyclic group of order n is isomorphic to the group of residue classes modulo n . [5]

Group B (25 marks)

Tensor Calculus

A tensor as a generalized concept of a vector in an Euclidean space E^3 . To generalize the idea in an n -dimensional space. Definition of E^n . Transformation of co-ordinates in E^n ($n = 2, 3$ as example). Summation convention.

Contravariant and covariant vectors. Invariants. Contravariant, covariant and mixed tensors. The Kronecker delta. Algebra of tensors Symmetric and skew-symmetric tensors. Addition and scalar multiplication. Contraction. Outer and Inner products of tensors. Quotient law. Reciprocal Tensor. Riemannian space. Line element and metric tensor. Reciprocal metric tensor. Raising and lowering of indices with the help of metric tensor. Associated tensor. Magnitude of a vector. Inclination of two vectors. Orthogonal vectors. Christoffel symbols and their laws of transformations. Covariant differentiation of vectors and tensors.
[15]

Group C (15 marks)

Differential Equations II

1. Laplace Transformation and its application in ordinary differential equations : Laplace Transform and Inverse Laplace Transform. Statement of Existence theorem. Elementary properties of Laplace Transform and its Inverse. Laplace Transform of derivatives. Laplace transform of integrals. Convolution theorem (Statement only). Application to the solution of ordinary differential equations of second order with constant coefficients.
2. Series solution at an ordinary point : Power Series solution of ordinary differential equations. Simple problems only.

Or

Group C (15 marks)

Graph Theory

1. Graphs : Undirected graphs. Directed graphs. Basic properties. Walk. Path. Cycles. Connected graphs. Components of a graph. Complete graph. Complement of a graph. Bipartite graphs. Necessary and sufficient condition for a Bipartite graph. [7]
2. Euler graphs : Necessary and Sufficient condition for a Euler graph. Königsberg Bridge Problem. [3]

3. Planar graphs : Face-size equation, Euler's formula for a planar graph. To show : the graphs K_5 and $K_3, 3$ are non-planar. [3]
4. Tree : Basic properties, Spanning tree, Minimal Spanning tree, Kruskal's algorithm, Prim's algorithm, Rooted tree, Binary tree. [5]

Module XI

Group A (10 marks)

Vector Calculus II

Line integrals as integrals of vectors, circulation, irrotational vector, work done, conservative force, , potential orientation. Statements and verification of Green's theorem, Stokes' theorem and Divergence theorem. [8]

Group B (20 marks)

Analytical Statics II

1. Centre of Gravity: General formula for the determination of C.G. Determination of position of C.G. of any arc, area of solid of known shape by method of integration. [3]
2. Virtual work: Principle of virtual work for a single particle. Deduction of the conditions of equilibrium of a particle under coplanar forces from the principle of virtual work. The principle of virtual work for a rigid body. Forces which do not appear in the equation of virtual work. Forces which appear in the equation of virtual work. The principle of virtual work for any system of coplanar forces acting on a rigid body. Converse of the principle of virtual work. [8]

3. Stable and unstable equilibrium. Coordinates of a body and of a system of bodies. Field of forces. Conservative field. Potential energy of a system. The energy test of stability. Condition of stability of equilibrium of a perfectly rough heavy body lying on fixed body. Rocking stones. [6]

4. Forces in the three dimensions. Moment of a force about a line. Axis of a couple. Resultant of any two couples acting on a body. Resultant of any number of couples acting on a rigid body. Reduction of a system of forces acting on a rigid body. Resultant force is an invariant of the system but the resultant couple is not an invariant.

Conditions of equilibrium of a system of forces acting on a body. Deductions of the conditions of equilibrium of a system of forces acting on a rigid body from the principle of virtual work. Poisson's central axis. A given system of forces can have only one central axis. Wrench, Pitch, Intensity and Screw. Condition that a given system of forces may have a single resultant. Invariants of a given system of forces. Equation of the central axis of a given system of forces. [12]

Group C (20 marks)

Analytical Dynamics of A Particle II

1. Central forces and central orbits. Typical features of central orbits. Stability of nearly circular orbits.
2. Planetary motion and Kepler's laws. Time of describing an arc of the orbit. Orbital energy. Relationship between period and semi-major axis. Motion of an artificial satellite.
3. Motion of a smooth curve under resistance. Motion of a rough curve under gravity e.g., circle, parabola, ellipse, cycloid etc.
4. Varying mass problems. Examples of falling raindrops and projected rockets.
5. Linear dynamical systems, preliminary notions: solutions, phase portraits, fixed or critical points. Plane autonomous systems. Concept of Poincare phase plane. Simple examples of damped oscillator and a simple pendulum. The two-variable case of a linear plane autonomous system. Characteristic polynomial. Focal, nodal and saddle points.

[20]

Module XII

Group A (25 marks)

Hydrostatics

1. Definition of Fluid. Perfect Fluid, Pressure. To prove that the pressure at a point in fluid in equilibrium is the same in every direction. Transmissibility of liquid pressure. Pressure of heavy fluids. To prove
 - (i) In a fluid at rest under gravity the pressure is the same at all points in the same horizontal plane.
 - (ii) In a homogeneous fluid at rest under gravity the difference between the pressures at two points is proportional to the difference of their depths.
 - (iii) In a fluid at rest under gravity horizontal planes re surfaces of equal density.
 - (iv) When two fluids of different densities at rest under gravity do not mix, their surface of separation is a horizontal plane.Pressure in heavy homogeneous liquid. Thrust of heavy homogeneous liquid on plane surface.

2. Definition of centre of pressure. Formula for the depth of the centre of pressure of a plane area. Position of the centre of pressure. Centre of pressure

- of a triangular area whose angular points are at different depths. Centre of pressure of a circular area. Position of the centre of pressure referred to co-ordinate axes through the centroid of the area. Centre of pressure of an elliptical area when its major axis is vertical or along the line of greatest slope. Effect of additional depth on centre of pressure.
3. Equilibrium of fluids in given fields of force : Definition of field of force, line of force. Pressure derivative in terms of force. Surface of equi-pressure. To find the necessary and sufficient conditions of equilibrium of a fluid under the action of a force whose components are X, Y, Z along the co-ordinate axes. To prove (i) that surfaces of equal pressure are the surfaces intersecting orthogonally the lines of force, (ii) when the force system is conservative, the surfaces of equal pressure are equi-potential surfaces and are also surfaces of equal density. To find the differential equations of the surfaces of equal pressure and density.
 4. Rotating fluids. To determine the pressure at any point and the surfaces of equal pressure when a mass of homogeneous liquid contained in a vessel, revolves uniformly about a vertical axis.
 5. The stability of the equilibrium of floating bodies. Definition, stability of equilibrium of a floating body, metacentre, plane of floatation, surface of buoyancy. General propositions about small rotational displacements. To derive the condition for stability.
 6. Pressure of gases. The atmosphere. Relation between pressure, density and temperature. Pressure in an isothermal atmosphere. Atmosphere in convective equilibrium.

[30]

Group B (25 marks)

Rigid Dynamics

1. Momental ellipsoid, Equipomental system. Principal axis. D'Alembert's principle. D'Alembert's equations of motion. Principles of moments. Principles of conservations of linear and angular momentum. Independence of the motion of centre of inertia and the motion relative to the centre of inertia. Principle of energy. Principle of conservation of energy.
2. Equation of motion of a rigid body about a fixed axis. Expression for kinetic energy and moment of momentum of a rigid body moving about a fixed axis. Compound pendulum. Interchangeability of the points of a suspension and centre of oscillation. Minimum time of oscillation.
3. Equations of motion of a rigid body moving in two dimensions. Expression for kinetic energy and angular momentum about the origin of rigid body moving in two dimensions. Necessary and sufficient condition for pure rolling. Two dimensional motion of a solid of revolution moving on a rough horizontal plane.

4. Equations of motion under impulsive forces. Equation of motion about a fixed axis under impulsive forces. To show that (i) if there is a definite straight line such that the sum of the moments of the external impulses acting on a system of particles about it vanishes, then the total angular momentum of the system about that line remains unaltered, (ii) the change of K.E. of a system of particles moving in any manner under the application of impulsive forces is equal to the work done by the impulsive forces. [30]

Module XIII

Group A (20 marks)

Analysis IV

1. Improper Integral :

- (a) Range of integration, finite or infinite. Necessary and sufficient condition for convergence of improper integral in both cases. [2]
- (b) Tests of convergence : Comparison and μ -test. Absolute and non-absolute convergence and interrelations. Abel's and Dirichlet's test for convergence

of the integral of a product (statement only).
[3]

- (c) Convergence and working knowledge of Beta and Gamma function and their interrelation $(\Gamma(n)\Gamma(1-n) = \frac{\pi}{\sin n\pi}, 0 < n < 1, \text{ to be assumed})$.

Computation of the integrals $\int_0^{\pi/2} \sin^n x dx, \int_0^{\pi/2} \cos^n x dx, \int_0^{\pi/2} \tan^n x dx$ when they exist (using Beta and Gamma function).
[5]

2. Fourier series : Trigonometric series. Statement of sufficient condition for a trigonometric series to be a Fourier series. Fourier co-efficients for periodic functions defined on $[-\pi, \pi]$. Statement of Dirichlet's conditions convergence. Statement of theorem of sum of Fourier series.
[5]
3. Multiple integral : Concept of upper sum, lower sum, upper integral, lower-integral and double integral (no rigorous treatment is needed). Statement of existence theorem for continuous functions. Change of order of integration. Triple integral. Transformation of double and triple integrals (Problem only). Determination of volume and surface area by multiple integrals (Problem only).
[5]

Group B (15 marks)

Metric Space

1. Definition and examples of metric spaces. Open ball. Open set. Closed set defined as complement of open set. Interior point and interior of a set. Limit point, derived set and closure of a set. Boundary point and boundary of a set. Properties of interior, closure and boundary of a set. Diameter of a set and bounded set. Distance between a point and a set.
[7]
2. Subspace of a metric space. Convergent sequence. Cauchy sequence. Every Cauchy sequence is bounded. Every convergent sequence is Cauchy, not the converse. Completeness : definition and examples. Cantor intersection theorem. \mathbb{R} is a complete metric space. \mathbb{Q} is not complete.
[4]

Group C (15 marks)

Complex Analysis

1. Extended complex plane. Stereographic projection.
[2]

2. Complex function : Limit , continuity and differentiability of complex functions. Cauchy-Riemann equations. Sufficient condition for differentiability of a complex function. Analytic functions. Harmonic functions. Conjugate harmonic functions. Relation between analytic function and harmonic function. [8]
-

Module XIV

Group A (30 marks)

Probability

Mathematical Theory of Probability :

Random experiments. Simple and compound events. Event space. Classical and frequency definitions of probability and their drawbacks. Axioms of Probability. Statistical regularity. Multiplication rule of probabilities. Bayes' theorem. Independent events. Independent random experiments. Independent trials. Bernoulli trials and binomial law. Poisson trials. Random variables. Probability distribution. distribution function. Discrete and continuous distributions. Binomial, Poisson, Gamma, Uniform and Normal distribution. Poisson Process (only definition). Transformation of random variables. Two dimensional probability distributions. Discrete and continuous distributions in two dimensions. Uniform distribution and two dimensional normal distribution. Conditional distributions. transformation of random variables in two dimensions. Mathematical expectation. Mean, variance, moments, central moments. Measures of location, dispersion, skewness and kurtosis. Median, mode, quartiles. Moment-generating function. Characteristic function. Two-dimensional expectation. Covariance, Correlation co-efficient, Joint characteristic function. Multiplication rule for expectations. Conditional expectation. Regression curves, least square regression lines and parabolas. Chi-square and t -distributions and their important properties (Statements only). Techebycheff's inequality. Convergence in probability. Statements of : Bernoulli's limit theorem. Law of large numbers. Poisson's approximation to binomial distribution and normal approximation to binomial distribution. Concepts of asymptotically normal distribution. Statement of central limit theorem in the case of equal components and of limit theorem for characteristic functions (Stress should be more on the distribution function theory than on combinatorial problems. Difficult combinatorial problems should be avoided).

[40]

Group B (20 marks)

Statistics

Random sample. Concept of sampling and various types of sampling. Sample and population. Collection, tabulation and graphical representation. Grouping of data. Sample characteristic and their computation. Sampling distribution of a statistic. Estimates of a population characteristic or parameter. Unbiased and consistent estimates. Sample characteristics as estimates of the corresponding population characteristics. Sampling distributions of the sample mean and variance. Exact sampling distributions for the normal populations.

Bivariate samples. Scatter diagram. Sample correlation co-efficient. Least square regression lines and parabolas. Estimation of parameters. Method of maximum likelihood. Applications to binomial, Poisson and normal population.

Confidence intervals. Interval estimation for parameters of normal population. Statistical hypothesis. Simple and composite hypothesis. Best critical region of a test. Neyman-Pearson theorem (Statement only) and its application to normal population. Likelihood ratio testing and its application to normal population. Simple applications of hypothesis testing. [35]

Module XV

Group A (25 marks)

Numerical Analysis

What is Numerical Analysis ?

Errors in Numerical computation : Gross error, Round off error, Truncation error. Approximate numbers. Significant figures. Absolute, relative and percentage error.

Operators : Δ , ∇ , E , μ , δ (Definitions and simple relations among them).

Interpolation : Problems of interpolation, Weierstrass' approximation theorem (only statement). Polynomial interpolation. Equispaced arguments. Difference table. Deduction of Newton's forward and backward interpolation formulae. Statements of Stirling's and Bessel's interpolation formulae. error terms. General interpolation formulae : Deduction of Lagrange's interpolation formula. Divided difference. Newton's General Interpolation formula (only statement). Inverse interpolation.

Interpolation formulae using the values of both $f(x)$ and its derivative $f'(x)$: Idea of Hermite interpolation formula (only the basic concepts).

Numerical Differentiation based on Newton's forward & backward and Lagrange's formulae.

Numerical Integration : Integration of Newton's interpolation formula. Newton-Cote's formula. Basic Trapezoidal and Simpson's $\frac{1}{3}$ rd. formulae. Their composite forms. Weddle's rule (only statement). Statement of the error terms associated with these formulae. Degree of precision (only definition).

Numerical solution of non-linear equations : Location of a real root by tabular method. Bisection method. Secant/Regula-Falsi and Newton-Raphson methods, their geometrical significance. Fixed point iteration method.

Numerical solution of a system of linear equations : Gauss elimination method. Iterative method – Gauss-Seidal method. Matrix inversion by Gauss elimination method (only problems – up to 3×3 order).

Eigenvalue Problems : Power method for numerically extreme eigenvalues.

Numerical solution of Ordinary Differential Equation : Basic ideas, nature of the problem. Picard, Euler and Runge-Kutta (4^{th} order) methods (emphasis on the problems only).

[30]

Group B (25 marks)

Computer Programming

Fundamentals of Computer Science and Computer Programming :

Computer fundamentals : Historical evolution, computer generations, functional description, operating system, hardware & software.

Positional number system : binary, octal, decimal, hexadecimal system. Binary arithmetic.

Storing of data in a computer : BIT, BYTE, Word. Coding of data – ASCII, EBCDIC, etc.

Algorithm and Flow Chart : Important features, Ideas about the complexities of algorithm. Application in simple problems.

Programming languages : General concepts, Machine language, Assembly Language, High Level Languages, Compiler and Interpreter. Object and Source Program. Ideas about some major HLL.

Students are required to opt for any one of the following two programming languages :

- (i) Programming with FORTRAN 77/90.
- Or
- (ii) Introduction to ANSI C.

Programming with FORTRAN 77/90 :

Introduction, Keywords, Constants and Variables – integer, real, complex, logical, character, double precision, subscripted. Fortran expressions. I/O statements-formatted and unformatted. Program execution control-logical if, if-then-else, etc. Arrays-Dimension statement. Repetitive computations – Do. Nested Do, etc. Sub-programs : Function sub program and Subroutine sub program.

Application to simple problems : Evaluation of functional values, solution of quadratic equations, approximate sum of convergent infinite series, sorting of real numbers, numerical integration, numerical solution of non-linear equations, numerical solution of ordinary differential equations, etc.

Introduction to ANSI C :

Character set in ANSI C. Key words : if, while, do, for, int, char, float etc.

Data type : character, integer, floating point, etc. Variables, Operators : =, ==, !=, <, >, etc. (arithmetic, assignment, relational, logical, increment, etc.). Expressions : e.g. (a == b) != (b == c), Statements : e.g. if (a>b) small = a; else small = b. Standard input/output. Use of while, if... Else, for, do...while, switch, continue, etc. Arrays, strings. Function definition. Running simple C Programs. Header File. [30]

Boolean Algebra : Huntington Postulates for Boolean Algebra. Algebra of sets and Switching Algebra as examples of Boolean Algebra. Statement of principle of duality. Disjunctive normal and Conjunctive normal forms of Boolean Expressions. Design of simple switching circuits. [10]

Module XVI

Practical

(Problem:30, Sessional Work:10, Viva:10)

(A) Using Calculator

(1) INTERPOLATION :

Newton's forward & Backward Interpolation.

Stirling & Bessel's Interpolation.

Lagrange's Interpolation & Newton's Divided Difference Interpolation.

Inverse Interpolation.

(2) Numerical Differentiation based on Newton's Forward & Backward Interpolation Formulae.

(3) Numerical Integration : Trapezoidal Rule, Simpson's $\frac{1}{3}$ Rule and Weddle's Formula.

(4) Solution of Equations : Bisection Method, Regula Falsi, Fixed Point Iteration. Newton-Raphson formula (including modified form for repeated roots and complex roots).

(5) Solution of System of Linear Equations : Gauss' Elimination Method with partial pivoting, Gauss-Seidel/Jordon Iterative Method, Matrix Inversion.

(6) Dominant Eigenpair of a (4×4) real symmetric matrix and least eigen value of a (3×3) real symmetric matrix by Power Method.

(7) Numerical Solution of first order ordinary Differential Equation (given the initial condition) by :

Picard's Method, Euler Method, Heun's Method, Modified Euler's Method, 4th order Runge-Kutta Method.

(8) Problems of Curve Fitting : To fit curves of the form $y=a+bx$, $y=a+bx+cx^2$, exponential curve of the form $y=ab^x$, geometric curve $y=ax^b$ by Least Square Method.

(B) ON COMPUTER :

The following problems should be done on computer using either FORTRAN or C language :

(i) To find a real root of an equation by Newton-Raphson Method.

(ii) Dominant eigenpair by Power Method.

(iii) Numerical Integration by Simpson's $\frac{1}{3}$ Rule.

(iv) To solve numerically Initial Value Problem by Euler's and RK₄ Method.

LIST OF BOOKS FOR REFERENCE

Module I Group A :

1. The Theory of Equations (Vol. I) – Burnside and Panton.
2. Higher Algebra – Barnard and Child.
3. Higher Algebra – Kurosh (Mir).

Module I Group B & Module V Group A :

1. Modern Algebra – Surjeet Singh & Zameruddin.
2. First Course in Abstract Algebra – Fraleigh.
3. Topics in Algebra – Herstein.
4. Test book of algebra – Leadership Project Committee (University of Bombay).
5. Elements of Abstract Algebra – Sharma, Gokhroo, saini (Jaipur Publishing House, S.M.S. Highway, Jaipur - 3).
6. Abstract Algebra – N. P. Chaudhuri (Tata Mc.Graw Hill).

Module IV Group A :

1. Linear Algebra – Hadley
2. Test Book of Matrix – B. S. Vaatsa

Module II Group A , Group B & Module VIII Group A :

1. Co-ordinate Geometry – S. L. Loney.
2. Co-ordinate Geometry of Three Dimensions – Robert J. T. Bell.
3. Elementary Treatise on Conic sections – C. Smith.
4. Solid Analytic Geometry – C. smith.
5. Higher Geometry – Efimov.

Module III Group A , Module VI Group A Module VII Group A, Module IX & Module XIII Group A :

1. Basic Real & Abstract Analysis – Randolph J. P. (Academic Press).
2. A First Course in Real Analysis – M. H. Protter & G. B. Morrey (Springer Verlag, NBHM).
3. A Course of Analysis – Phillips.
4. Problems in Mathematical Analysis – B. P. Demidovich (Mir).
5. Problems in Mathematical Analysis – Berman (Mir).
6. Differential & Integral Calculus (Vol. I & II) – Courant & John.
7. Calculus of One Variable – Maron (CBS Publication).
8. Introduction to Real Analysis – Bartle & Sherbert (John Wiley & Sons.)
9. Mathematical Analysis – Parzynski.
10. Introduction to Real Variable Theory – Saxena & Shah (Prentice Hall Publication).

11. Real Analysis – Ravi Prakash & Siri Wasan (Tata McGraw Hill).
12. Mathematical Analysis – Shantinakaran (S. Chand & Co.).
13. Theory & Applications of Infinite Series – Dr. K. Knopp.
14. Advanced Calculus – David Widder (Prentice Hall).
15. Charles Chapman Pugh: Real mathematical analysis; Springer; New York; 2002
16. Sterling K. Berberian: A First Course in Real Analysis; Springer; New York; 1994
17. Steven G. Krantz: Real Analysis and Foundations; Chapman and Hall/CRC; 2004
18. Stephen Abbott: Understanding Analysis; Springer; New York, 2002
19. T. M. Apostol: Mathematical Analysis, Addison-Wesley Publishing Co. 1957
20. W. Ruddin: Principles of Mathematical Analysis, McGraw-Hill, New York, 1976
21. J. F. Randolph: Basic Real and Abstract Analysis, Academic Press; New York, 1968
22. Robert G Bartle, Donald R Sherbert: Introduction to real analysis; John Wiley Singapore; 1994
23. Integral Calculus – Shanti Narayan & P. K. Mittal (S. Chand & Co. Ltd.)
24. Integral Calculus – H. S. Dhami (New Age International)
25. Integral Calculus – B. C. Das & B. N. Mukherjee (U. N. Dhur)
26. Differential & Integral Calculus (Vols. I & II) – Courant & John.
27. Differential & Integral Calculus (Vol. I) – N. Piskunov
(CBS Publishers & Distributors)

Module VII :

1. Differential Calculus – Shantinakaran.
2. Integral Calculus – Shantinakaran.
3. An elementary treatise on the Differential Calculus – J. Edwards (Radha Publishing House).
4. Advanced Calculus – David V. Widder (Prentice Hall)
5. Real Analysis – Ravi Prakash & Siri Wasan (Tata McGraw Hill)
6. A Course of Analysis – E. G. Phillips (Cambridge University Press)
7. Differential Calculus – Shanti Naryaan (S. Chand & Co. Ltd.)
8. An elementary treatise on the Differential Calculus – J. Edwards (Radha Publishing House)
9. Differential Calculus – H. S. Dhami (New Age International)
10. Differential & Integral Calculus (Vols. I & II) – Courant & John.
11. Differential & Integral Calculus (Vol. I) – N. Piskunov
(CBS Publishers & Distributors)

Module II Group C , Module IV Group B , Module XI Group A :

1. Vector Analysis – Louis Brand.
2. Vector Analysis – Barry Spain.

3. Vector & Tensor Analysis – Spiegel (Schaum).
4. Elementary Vector Analysis – C. E. Weatherburn (Vol. I & II).

Module V Group B :

1. Linear Programming : Method and Application – S. I. Gass.
2. Linear Programming – G. Hadley.
3. An Introduction to Linear Programming & Theory of Games – S. Vajda.

Module VI Group B :

1. Differential Equations – Lester R. Ford (McGraw Hill).
2. Differential Equations – S. L. Ross (John Wiley).
3. Differential Equations – H. T. H. Piaggio.
4. A Text Book of Ordinary Differential Equations – Kiseleyev, Makarenko & Krasnov (Mir).
5. Differential Equations – H. B. Phillips (John Wiley & Sons).
6. Differential Equations with Application & Programs – S. Balachanda Rao, H. R. Anuradha (University Press).
7. Text Book of Ordinary Differential Equations (2nd Ed.) – S. G. Deo, V. Lakshmikantham & V. Raghavendra (Tata McGraw Hill).
8. An Elementary Course in Partial Differential Equation – T. Amarnath (Narosa).
9. An Introductory Course on Ordinary Differential Equation – D. A. Murray.

Module VIII Group C & Module XI Group C :

1. An Elementary Treatise on the Dynamics of a Particle & of Rigid bodies – S. L. Loney (Macmillan).

Module XV :

1. The elements of probability theory and some of its applications - H. Cramer.
2. An introduction to probability theory and its applications (Vol. 1) – W. Feller.
3. Mathematical methods of statistics – H. Cramer.
4. Theory of probability – B. V. Gnedenko.
5. Mathematical probability – J. V. Uspensky.
6. Programming with FORTRAN 77 – A Structured approach – R. S. Dhaliwal, S. K. Agarwal, S. K. Gupta (Wiley Eastern Limited/New Age International Ltd.).
7. Structured FORTRAN 77 for engineers and scientists – D. M. Etter (The Benjamin/Cummings Publishing Co. Inc.).
8. Programming and Computing with FORTRAN 77/90 – P. S. Grover (Allied Publishers).

9. Programming with FORTRAN including structured FORTRAN - Seymour Lipschutz and Arthur Poe (Schaum's Outline Series).
10. FORTRAN 77 and numerical methods – C. Xavier (Wiley Eastern limited).
11. Numerical methods – E. Balagurusamy (Tata McGraw Hill).
12. Let us C – Y. Kanetkar (BPB Publications).
13. Programming in C – V. Krishnamoorthy and K. R. Radhakrishnan (Tata McGraw Hill).
14. C by example : Noel Kalicharan (Cambridge University Press).
15. Programming in ANSI C – E. Balagurusamy (Tata McGraw Hill).
16. Introduction to numerical analysis – F. B. Hilderbrand (TMH Edition).
17. Numerical Analysis – J. Scarborough.
18. Introduction to numerical analysis – Carl Erik Froberg (Addison Wesley Publishing).
19. Numerical methods for science and engineering – R. G. Stanton (Prentice Hall).

Module XII Group A :

1. Vector Analysis – Spiegel (Schaum).
2. Vector Calculus – C. E. Weatherburn.
3. Analytical Statics – S. L. Loney
4. Dynamics of Particle and of Rigid Bodies – S. L. Loney.
5. Hydrostatics – A. S. Ramsay.

Module X :

1. Advanced Calculus – David Widder (Prentice Hall)
2. Elementary Treatise on Laplace Transform – B. Sen (World Press).
3. Operational Methods in Applied Mathematics – H. S. Carslaw. J. C. Jaeger.
4. Graph Theory and its Applications – Gross, Jonathan and Yellen, Jay (CRC Prss, USA, 1999).
5. Graph Theory with applications to Engineering and Computer Science – Deo, Narsingh (Prentice Hall, 2000).
6. Graph Theory – Harary Grank (Addison-Wesley Publishing Co. 1972).
7. Tensor Calculus – Barry Spain
8. Vector Analysis and Tensor Calculus(Schaum Series) – Spiegel.
9. P. K. Jain and K. Ahmad: Metric Spaces, Narosa Publishing House; New Delhi; 1996
10. R. V. Churchill and J.W.Brown: Complex Variables and Applications; Mcgraw-Hill; New York; 1996
11. J. B. Conway: Functions of One Complex Variables; Narosa Publishing; New Delhi; 1973/973
12. S. Ponnusamy: Foundations of Complex Analysis; Narosa; New Delhi; 1995
13. L. V. Ahlfors: Complex Analysis: an introduction to the theory of analytic . functions of one complex variable; McGraw-Hill; New York; 1966

GENERAL

(Total 8 modules each of 50 marks)

MODULE I : **Group A** : Classical Algebra (20 marks)
Group B : Analytical Geometry of two dimensions (15 marks)
Group C : Vector Algebra (15 marks)

MODULE II : **Group A** : Differential Calculus (25 marks)
Group B : Integral Calculus (10 marks)
Group C : Differential Equations (15 marks)

MODULE III : **Group A** : Modern Algebra (25 marks)
Group B : Analytical Geometry of three dimensions (25 marks)

MODULE IV : **Group A** : Differential Calculus (25 marks)
Group B : Integral Calculus (15 marks)
Group C : Differential Equations (10 marks)

MODULE V : **Group A** : Numerical Methods (20 marks)
Group B : Linear Programming (30 marks)

MODULE VI : Any **one** of the following groups :

Group A : Analytical Dynamics (50 marks)
Group B : Probability & Statistics (50 marks)

MODULE VII : Computer Science & Programming (50 marks)

MODULE V : Any **one** of the following groups :

Group A : A Course of Calculus (50 marks)
Group B : Discrete Mathematics (50 marks)

MODULE I

Group A (20 marks)

Classical Algebra

- 01. Complex Numbers :** De Moivre's Theorem and its applications. Exponential, Sine, Cosine and Logarithm of a complex number. Definition of a^z , ($a \neq 0$). Inverse circular and Hyperbolic functions.
- 02. Polynomials :** Fundamental Theorem of Classical Algebra (Statement only). Polynomials with real co-efficients: The n th degree polynomial equation has exactly n roots. Nature of roots of an equation (Surd or Complex roots occur in pairs). Statement of Descarte's Rule of signs and its applications.
- Statements of :
- If the polynomial $f(x)$ has opposite signs for two real values of x , e.g. a and b , the equation $f(x) = 0$ has an odd number of real roots between a and b ; if $f(a)$ and $f(b)$ are of same sign, either no real root or an even number of roots lies between a and b .
 - Rolle's Theorem and its direct applications.

Relation between roots and co-efficients. Symmetric functions of roots, Transformations of equations. Cardan's method of solution of a cubic.

- 03. Determination up to the third order :** Properties, Cofactor and Minor. Product of two determinants. Adjoint, Symmetric and Skew-symmetric determinants. Solutions of linear equations with not more than three variables by Cramer's Rule.
- 04. Matrices of Real Numbers :** Equality of matrices. Addition of matrices. Multiplication of a matrix by a scalar. Multiplication of matrices – Associative properties. Transpose of matrix – its properties. Inverse of a non-singular square matrix. Symmetric and Skew-symmetric matrices. Scalar matrix. Orthogonal matrix. Elementary operations on matrices.

Rank of a matrix : Determination of rank either by considering minors or by sweep-out process. Consistency and solution of a system of linear of equations with not more than 3 variables by matrix method.

Group B (15 marks)

Analytical Geometry of 2 Dimensions

- 01. Transformations of Rectangular axes :** Translation, Rotation and their combinations. Invariants.
- 02. General equation of second degree in x and y :** Reduction to canonical forms. Classification of conic.
- 03. Pair of straight lines :** Condition that the general equation of 2nd degree in x and y may represent two straight lines. Points of intersection of two intersecting straight lines. Angle between two lines given by $ax^2 + 2hxy + by^2 = 0$. Equation of bisectors. Equation of two lines joining the origin to the points in which a line meets a conic.

04. **Equations of pair of tangents from an external point, chord of contact, poles and polars in case of General conic** : Particular cases for Parabola, Ellipse, Circle, Hyperbola.
05. Polar equation of straight lines and circles. Polar equation of a conic referred to a focus as pole. Equation of chord joining two points. Equations of tangent and normal.

Group C (15 marks)

Vector Algebra

Addition of Vectors. Multiplication of a Vector by a scalar. Collinear and Coplanar Vectors. Scalar and Vector products of two and three vectors. Simple applications to problems of Geometry. Vector equation of plane and straight line. Volume of Tetrahedron. Application to problems of Mechanics (Work done and Moment).

MODULE II

Group A (25 marks)

Differential Calculus

01. Rational Numbers. Geometrical representation. Irrational number. Real number represented as point on a line – Linear Continuum. Acquaintance with basic properties of real number (No deduction or proof is included).
02. **Sequence** : Definition of bounds of a sequence and monotone sequence. Limit of a sequence. Statements of limit theorems. Concept of convergence and divergence of monotone sequences – applications of the theorems, in particular, definition of ϵ . Statement of Cauchy's general principle of convergence and its application.
03. **Infinite series of constant terms** : Convergence and Divergence (definitions). Cauchy's principle as applied to infinite series (application only). Series of positive terms : Statements of Comparison test, D'Alembert's Ratio test. Cauchy's nth root test and Raabe's test – Applications. Alternating series: Statement of Leibnitz test and its applications.
04. **Real-valued functions defined on an interval** : Limit of a function (Cauchy's definition). Algebra of limits. Continuity of a function at a point and in an interval.

Acquaintance (no proof) with the important properties of continuous functions on closed intervals. Statement of existence of inverse function of a strictly monotone function and its continuity.

05. **Derivative** – its geometrical and physical interpretation. Sign of derivative – Monotonic increasing and decreasing functions. Relation between continuity and derivability. Differential – application in finding approximation.

- 06. Successive derivative** – Leibnitz’s Theorem and its application.
- 07.** Application of the principle of Maxima and Minima for a function of single variable in geometrical, physical and other problems.
- 08. Applications of Differential Calculus :** Tangents and Normals, Pedal equation and Pedal of a curve. Rectilinear Asymptotes (Cartesian only).
Definition and examples of singular points (viz. Node, Cusp, Isolated point).

Group B (10 marks)

Integral Calculus

- 01.** Integration of the form :

$\int \frac{dx}{a+b \cos x}$, $\int \frac{l \sin x + m \cos x}{n \sin x + p \cos x} dx$ and Integration of Rational functions.

- 02.** Evaluation of definite integrals.

- 03.** Integration as the limit of a sum (with equally spaced as well as unequal intervals)

Group C (15 marks)

Differential Equations

- 01.** Order, degree and solution of an ordinary differential equation (ODE) in presence

of arbitrary constants. Formation of ODE.

First order equations :

- (i) Variables separable.
- (ii) Homogeneous equations and equations reducible to homogeneous forms.
- (iii) Exact equations and those reducible to such equation.
- (iv) Euler’s and Bernoulli’s equations (Linear).
- (v) Clairaut’s Equations : General and Singular solutions.

- 02.** Simple applications : Orthogonal Trajectories.

MODULE III

Group A (25 marks)

Modern Algebra

- 01. Basic concept :** Sets, Sub-sets, Equality of sets, Operations on sets : Union, intersection and complement. Verification of the laws of Algebra of sets and De Morgan's Laws. Cartesian product of two sets.
Mappings, One-One and onto mappings. Composition of Mappings

–
concept only, Identity and Inverse mappings. Binary Operations in a set.
Identity element. Inverse element.

- 02. Introduction of Group Theory :** Definition and examples taken from various branches (examples from number system, roots of unity, 2×2 real matrices, non-singular real matrices of a fixed order). Elementary properties using definition of Group. Definition and examples of sub-group – Statement of necessary and sufficient condition – its applications.
- 03.** Definitions and examples of (i) Ring, (ii) Field, (iii) Sub-ring, (iv) Sub-field.
- 04. Concept of Vector space over a Field :** Examples, Concepts of Linear combinations, Linear dependence and independence of a finite set of vectors, Sup-space. Concepts of generators and basis of a finite-dimensional vector space. Problems on formation of basis of a vector space (No proof required).
- 05.** Real Quadratic Form involving not more than three variables – Problems only.
- 06.** Characteristic equation of a square matrix of order not more than three – determination of Eigen Values and Eigen Vectors – Problems only. Statement and illustration of Cayley-Hamilton Theorem.

Group B (25 marks)

Analytical Geometry of 3 dimensions

- 01. Rectangular Cartesian co-ordinates :** Distance between two points. Division of a line segment in a given ratio. Direction cosines and direction ratios of a straight line. Projection of a line segment on another line. Angle between two straight lines.
- 02. Equation of a Plane :** General form. Intercept and Normal form. Angle between two planes. Signed distance of a point from a plane. Bisectors of angles between two intersecting planes.
- 03. Equations of Straight line :** General and symmetric form. Distance of a point from a line. Coplanarity of two straight lines. Shortest distance between two skew-lines.
- 04.** Sphere and its tangent plane.
- 05.** Right circular cone.

MODULE IV

Group A (25 marks)

Differential Calculus

01. Statement of Rolle's theorem and its geometrical interpretation. Mean Value Theorems of Lagrange and Cauchy. Statements of Taylor's and Maclaurin's Theorems with Lagrange's and Cauchy's form of remainders. Taylor's and Maclaurin's Infinite series for functions like e^x , $\sin x$, $\cos x$, $(1+x)^n$, $\log(1+x)$ [with restrictions wherever necessary]
02. **Indeterminate Forms** : L'Hospital's Rule : Statement and problems only.
03. **Functions of two and three variables** : Their geometrical representations. Limit and Continuity (definitions only) for functions of two variables. Partial derivatives : Knowledge and use of Chain Rule. Exact differentials (emphasis on solving problems only). Functions of two variables – Successive partial derivatives : Statement of Schwarz's Theorem on commutative property of mixed derivatives. Euler's theorem on homogeneous function of two and three variables. Maxima and minima of functions of not more than three variables – Lagrange's Method of undetermined multiplier – Problems only. Implicit function in case of function of two variables (existence assumed) and derivative.

Group B (15 marks)

Integral Calculus

01. Reduction formulae of $\int \sin^m x \cos^n x dx$, $\int \frac{\sin^m x}{\cos^n x} dx$, $\int \tan^n x dx$ and associated problems (m and n are non-negative integers).
02. **Definition of Improper Integrals** : Statements of (i) μ -test, (ii) Comparison test (Limit form excluded) – Simple problems only. Use of Beta and Gamma functions (convergence and important relations being assumed).
03. Working knowledge of Double integral.
04. **Applications** : Rectification, Quadrature, Volume and Surface areas of solids formed by revolution of plane curve and areas – Problems only.

Group C (10 marks)

Differential Equations

01. **Second order linear equations** : Second order linear differential equations with constant. Coefficients. Euler's Homogeneous equations.

MODULE V

Group A (20 marks)

Numerical Methods

01. Approximate numbers, Significant figures, Rounding off numbers. Error – Absolute, Relative and Percentage.
02. **Operators** - Δ , ∇ and E (Definitions and some relations among them).
03. **Interpolation** : The problem of Interpolation, Equispaced arguments – Difference Tables, Deduction of Newton's Forward Interpolation Formula. Remainder term (expression only). Newton's Backward Interpolation formula (statement only) with remainder term. Unequally – spaced arguments – Lagrange's Interpolation Formula (statement only). Numerical problems on Interpolation with both equi- and unequally-spaced arguments.
04. **Number Integration** : Trapezoidal and Simpson's $\frac{1}{3}$ rd formula (statement only). Problems on Numerical Integration.
05. **Solution of Numerical Equation** : To find a real root of an algebraic or transcendental equation. Location of root (Tabular method), Bisection method. Newton-Raphson method with geometrical significance. Numerical problems.

(Note : emphasis should be given on problems)

Group B (30 marks)

Linear Programming

01. Motivation of Linear Programming problem. Statement of L.P.P. formulation of L.P.P. Slack and Surplus variables. L.P.P. in matrix form. Convex set, Hyperplane, Extreme points, Convex Polyhedron, Basic solutions and Basic Feasible Solutions (B.F.S.) Degenerate and Non-degenerate B.F.S.

The set of all feasible solutions of an L.P.P. is a convex set. The objective function of an L.P.P. assumes its optimal value at an extreme point of the convex set of feasible solutions. A B.F.S. to an L.P.P. corresponds to an extreme point of the convex set of feasible solutions.

Fundamental Theorem of L.P.P. (Statement only). Reduction of a feasible solution to a B.F.S. Standard form of an L.P.P. Solution by graphical method (for two variables), by simplex method and method of penalty. Concept of duality. Duality theory. The dual of the dual is the primal. Relation between the objective values of dual and the primal problems. Dual problems with at most one unrestricted variable, one constraint of equality.

Transportation and Assignment problem and their optimal solutions.

MODULE VI

(50 marks)

(Any one of the following groups)

Group A

Analytical Dynamics

01. Velocity and Acceleration of a particle. Expressions for velocity and acceleration in rectangular Cartesian and polar co-ordinates for a particle moving in a plane. Tangential and normal components of velocity and acceleration of a particle moving along a plane curve.
02. **Concept of Force** : Statement and explanation of Newton's laws of motion. Work, power and energy. Principles of conservation of energy and momentum. Motion under impulsive forces. Equations of motion of a particle (i) moving in a straight line, (ii) moving in a plane.
03. Study of motion of a particle in a straight line under (i) constant forces, (ii) variable forces (S.H.M., Inverse square law, Damped oscillation, Forced and Damped oscillation, Motion in an elastic string). Equation of Energy. Conservative forces.
04. **Motion in two dimensions** : Projectiles in vacuo and in a medium with resistance varying linearly as velocity. Motion under forces varying as distance from a fixed point.
05. Central orbit. Kepler's laws of motion. Motion under inverse square law.

OR

Group B

Probability and Statistics

01. **Elements of Probability Theory** : Random experiment, Outcome, Event, Mutually Exclusive Events, Equality like and Exhaustive, Classical definition of Probability, theorems of Total Probability, Conditional Probability and Statistical Independence. Bayes' theorem. Problems. Shortcomings of the classical definition. Axiomatic approach – Problems. Random Variable and its Expectation. Theorems on mathematical expectation. Joint distribution of two random variables.
Theoretical Probability Distribution – Discrete and Continuous (p.m.f. pd.d.f.) Binomial, Poisson and Normal distributions and their properties.
02. Elements of Statistical Methods. Variables, Attributes, Primary data and secondary data. Population and sample. Census and Sample Survey. Tabulation – Chart and Diagram, graph, Bar diagram, Pie diagram etc. Frequency Distribution – Un-grouped and grouped cumulative frequency distribution. Histogram, Frequency curve, Measure of Central Tendencies – Average : AM, GM, HM, Mean, Median and Mode (their advantages and disadvantages). Measures of Dispersions – Range, Quartile Deviation, Mean Deviation, Variance/S.D., Moments, Skewness and Kurtosis.
03. **Sampling Theory** : Meaning and objects of sampling. Some ideas about the methods of selecting samples. Statistic and Parameter, Sampling Distribution – standard error of a statistic (e.g. sample mean, sample proportion). Four fundamental distributions derived from the normal : (i) Standard Normal Distribution, (ii) Chi-square distribution, (iii) Student's distribution, (iv) Snedecor's F-distribution.

- Estimation and Test of Significance. Statistical Inference. Theory of estimation – Point estimation and Interval estimation. Confidence Inter/Confidence Limit. Statistical Hypothesis – Bull Hypothesis and Alternative Hypothesis. Level of significance. Critical Region. Type I and Type II error. Problems.
- 04.** Bivariate Frequency Distribution. Scatter Diagram, Correlation co-efficient – Definition and properties. Regression lines.
- 05. Time Series :** Definition. Why to analyze Time series data ? Components. Measurement of Trend – (i) Moving Average Method, (ii) Curve Fittings (linear and quadratic curve). (Ideas of other curves, e.g. exponential curve etc.). Ideas about the measurement of other components.
- 06. Index Number :** Meaning of Index Number. Construction of Price Index Number. Consumer Price Index Number. Calculation of Purchasing Power of Rupee.

MODULE VII

(50 marks)

Computer Science & Programming

- 01. Boolean algebra** – Basic Postulates and Definition. Two-element Boolean algebra. Boolean function. Truth table. Standard form of Boolean function – DNF and CNF. Minterms and maxterms. Principle of Duality. Some laws and theorem of Boolean algebra. Simplification of Boolean expressions – Algebraic method and Karnaugh Map method. Application of Boolean algebra – Switching Circuits, Circuit having some specified properties, Logical Gates – AND, NOT, OR, NAND, NOR etc.
- 02. Computer Science and Programming :** Historical Development, Computer Generation, Computer Anatomy – Different Components of a Computer System. Operating System, Hardware and Software.
- Positional Number System. Binary to Decimal and Decimal to Binary. Other systems. Binary Arithmetic. Octal, Hexadecimal, etc. Storing of data in a Computer – BIT, BYTE, WORD, etc. Coding of a data – ASCII , etc.
- Programming Language :** Machine Language, Assembly language and High level language. Compiler and Interpreter. Object Programme and Source Programme. Ideas about some HLL – e.g. BASIC, FORTRAN, C, C++, COBOL, PASCAL, etc.
- Algorithms and Flow Charts** – their utilities and important features, Ideas about the complexities of an algorithm. Application in simple problems. FORTRAN 77/99 : Introduction, Data Type – Keywords, Constants and Variables – Integer, Real, Complex, Logical, Character, Subscripted Variables, Fortran Expressions.
- I/O Statements** – formatted and unformatted. Programme execution control – Logical if, if-then-else, etc. Arrays, dimension statement. Repetitive Computation – Do, Bested Do etc.
- Sub Programs** – (i) Function Sub Programme
(ii) Subroutine Sub Programme

Elements of BASIC Programming Language : Reading, Printing, Branch & Loop, Array, Functions.

Application to Simple Problems. An exposure to M.S. Office, e-mail, Internet (Through Demonstration only).

MODULE VIII

(50 marks)

(Any one of the following groups)

Group A

A Course of Calculus

- 01.** Concept of Point-wise and Uniform convergence of sequence of functions and series of functions with special reference of Power Series. Statement of Weierstrass M-Test for Uniform convergence of sequence of functions and of series of functions. Simple applications. Statement of important properties like boundedness, continuity, differentiability and integrability of the limit function of uniformly convergent sequence of functions and of the sum function of uniformly convergent series of functions. Determination of Radius of convergence of Power Series.
Statement of properties of continuity of sum function power series. Term by term integration and Term by term differentiation of Power Series. Statements of Abel's Theorems on Power Series. Convergence of Power Series. Expansions of elementary functions such as e^x , $\sin x$, $\log(1+x)$, $(1+x)^n$. Simple problems.
- 02.** Fourier series on $(-\pi, \pi)$: Periodic function. Determination of Fourier coefficients. Statement of Dirichlet's conditions of convergence and statement of the theorem on convergence of Fourier Sine and Cosine series.
- 03.** Third and Fourth order ordinary differential equation with constant coefficients. Euler's Homogeneous Equation.
- 04.** Second order differential equation : (a) Method of variation of parameters. (b) Method of undetermined co-efficients. (c) Simple eigenvalue problem.
- 05.** Simultaneous linear differential equation with constant co-efficients.
- 06.** Laplace Transform and its application to ordinary differential equation. Laplace Transform and Inverse Laplace Transform. Statement of Existence theorem. Elementary properties of Laplace Transform and its Inverse. Application to the solution of ordinary differential equation of second order with constant eo-efficients.
- 07.** Partial Differential Equation (PDE) : Introduction, Formation of PDE, Solutions of PDE, Lagrange's method of solution.

OR

Group B

Discrete Mathematics

- 01. Integers** : Principle of Mathematical Induction. Division algorithm. Representation of integer in an arbitrary base. Prime integers. Some properties of prime integers. Fundamental theorem of Arithmetic. Euclid's Theorem. Linear Diophantine Equations. (Statement of Principle of Mathematical Induction, Strong form of Mathematical induction. Applications in different problems. Proofs of division algorithm. Representation of an integer uniquely in an arbitrary base, change of an integer from one base to another base. Computer operations with integers – Divisor of an integer, g.c.d. of two positive integers, prime integer, Proof of Fundamental theorem, Proof of Euclid's Theorem. To show how to find all prime numbers less than or equal to a given positive integer. Problems related to prime number. Linear Diophantine equation – when such an equation has solution, some applications).
- 02. Congruences** : Congruence relation on integers, Basic properties of this relation. Linear Congruences, Chinese Remainder Theorem. System of Linear Congruences. (Definition of Congruence – to show it is an equivalence relation, to prove the following : $a \equiv b \pmod{m}$ implies (i) $(a+c) \equiv (b+c) \pmod{m}$ (ii) $ac \equiv bc \pmod{m}$ (iii) $a^n \equiv b^n \pmod{m}$, for any polynomial $f(x)$ with integral coefficients $f(a) \equiv f(b) \pmod{m}$ etc. Linear Congruence, to show how to solve these congruences, Chinese remainder theorem – Statement and proof and some applications. System of linear congruences, when solution exists – some applications).
- 03. Application of Congruences** : Divisibility tests. Computer file, Storage and Hashing functions. Round-Robin Tournaments. Check-digit in an ISBN, in Universal Product Code, in major Credit Cards. Error detecting capability. (Using Congruence, develop divisibility tests for integers base on their expansions with respect to different bases, if d divides $(b-1)$ then $n = (a_k a_{k-1} \dots a_1)_b$ is divisible by d if and only if the sum of the digits is divisible by d etc. Show that congruence can be used to schedule Round-Robin tournaments. A university wishes to store a file for each of its students in its computer. Systematic methods of arranging files have been developed based on Hashing functions $h(k) \equiv k \pmod{m}$. Discuss different properties of this congruence and also problems based on this congruence. Check digits for different identification numbers – International standard book number, universal product code etc. Theorem regarding error detecting capability).
- 04. Congruence Classes** : Congruence classes, addition and multiplication of congruence classes. Fermat's little theorem. Euler's Theorem. Wilson's theorem. Some simple applications. (Definition of Congruence Classes, properties of Congruence classes, addition and multiplication, existence of inverse. Fermat's little theorem. Euler's theorem. Wilson's theorem – Statement, proof and some applications).
- 05. Recurrence Relations and Generating functions** : Recurrence Relations. The method of Iteration. Linear difference equations with constant coefficients. Counting with generating functions.
- 06. Boolean Algebra** : Boolean Algebra, Boolean functions, Logic gates, Minimization of circuits.

UNIVERSITY OF CALCUTTA

SYLLABI

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THREE-YEAR B.Sc. HONOURS & GENERAL
COURSES OF STUDIES



STATISTICS

2010

UNIVERSITY OF CALCUTTA
SYLLABI OF THE THREE-YEAR B.Sc HONS. & GENERAL COURSES OF STUDIES
IN STATISTICS

Course Structure (Statistics Honours) for Annual System

Part	Paper	Marks	Topic (as mentioned in Year system)	Topics from the modules
Part 1	IA	50	Descriptive Statistics	Descriptive Statistics I (101)
<i>Total 200</i>				Descriptive Statistics II (201)
	IB	50	Probability Theory I	Probability Theory I (102)
				Probability Theory II (202)
	IIA	50	Linear Algebra and Population Statistics	Linear Algebra (103)
				Population Statistics (203)
	IIB	50	Practical comprising of Papers IA,IB & IIA and use of spreadsheet (EXCEL)	Practical including use of spreadsheet (EXCEL) (104 + 204)
Part 2	IIIA	50	Mathematical Methods and Probability Theory II	Mathematical Methods (301)
<i>Total 200</i>				Probability Theory III (302)
	IIIB	50	Sampling Distributions and Statistical Inference I	Sampling Distributions (401)
				Statistical Inference I (402)
	IVA	50	Official & Economic Statistics and Statistical Quality Control	Official and Economic Statistics (303)
				Statistical Quality Control (403)
	IVB	50	Practical comprising of Papers IIA,IIB &IIIA and use of MINITAB and C	Practical including use of Statistical software : MINITAB and Programming Language: C (304 + 404)
Part 3	VA	50	Multivariate Analysis and Large Sample Theory	Multivariate Analysis (501)
<i>Total 400</i>				Large Sample Theory (601)
	VB	50	Statistical Inference II	Statistical Inference II (502)
				Statistical Inference III (602)
	VIA	50	Design of Experiments and Sample Survey Methods I	Introduction to Designs of Sample Survey and Experiment (503)
				Design of Experiments (603)
	VIB	50	Time Series Analysis and Sample Survey Methods II	Time Series Analysis (504)
				Sample Survey Methods (604)
	VIIA	50	Practical comprising of Papers VA & VB	505 + 506
	VIIIB	50	Practical comprising of Papers VIA & VIB	605 + 606
	VIIIA	50	Programming language C (selected features)	Programming language C (selected features) I (507)
				Programming language C (selected features) II (508)
	VIIIB	50	Computation and Data Analysis	Computation and Data Analysis I (607)
				Computation and Data Analysis II (608)

HONOURS

101 Descriptive Statistics I

Introduction : Nature of Statistics, Uses of Statistics, Statistics in relation to other disciplines, Abuses of Statistics. (2L)

Types of Data: Concepts of population and sample, quantitative and qualitative data, cross-sectional and time-series data, discrete and continuous data, different types of scales. (3L)

Collection of Scrutiny of Data: Primary data – designing a questionnaire and a schedule, checking its consistency. Secondary data – its major sources. Complete enumeration. Controlled experiments, Observational studies and Sample Surveys. Scrutiny of data for internal consistency and detection of errors in recording. Ideas of cross-validation. (3L)

Presentation of data: Construction of Tables with one or more factors of classification, diagrammatic representations, frequency distributions and cumulative frequency distributions and their graphical representations, stem and leaf displays. (4L)

Univariate data – different measures of location, dispersion, relative dispersion, skewness and kurtosis, Moments, Liapounov's inequality, Quantiles and measures based on them – comparison with moment measures. Box Plot. Outlier Detection. (13L)

References :

1. Goon A.M., Gupta M. K., Dasgupta B. (1998): Fundamentals of Statistics (V-1), World Press
2. Yule G.U & Kendall M.G. (1950): An Introduction to the Theory of Statistics, C.Griffin
3. Snedecor & Cochran (1967): Statistical Methods (6th ed), Iowa State Univ. Press
4. Croxton F.E., Cowden D.J. & Klein (1969): Applied General Statistics, Prentice Hall
5. Wallis F.E. & Roberts H.V. (1957): Statistics- a new approach, Methuen
6. Tukey J.W. (1977): Exploratory Data Analysis, Addison-Wesley Publishing Co.

102 Probability Theory I

Random Experiment: Trial, Sample point, Sample space, Different types of events. (5L)

Definition of probability: Classical and relative-frequency approach to probability, Kolmogorov's Axiomatic definition (detailed discussion on discrete space only), limitations of Classical definition. Probability of union and intersection of events, Probability of occurrence of exactly m and atleast m events out of n events. Conditional probability and Independence of events, Bayes' Theorem and its applications. Examples based on classical approach and repeated trials (20L)

References:

1. Chung K.L. (1983): Elementary Probability Theory with Stochastic Process, Springer / Narosa
2. Feller W. (1968): An Introduction to Probability Theory & its Applications, John Wiley
3. Goon A.M., Gupta M.K. & Dasgupta B. (1994): An Outline of Statistical Theory (Vol-1), World Press
4. Rohatgi V.K. (1984): An Intro. to Probability Theory & Math. Statistics, John Wiley

5. Hoel P.J., Port S.C. & Stone C.J. (): Introduction to Probability Theory (Vol-1), Mifflin & UBS
6. Cramer H. (1954): The Elements of Probability Theory, John Wiley
7. Parzen E. (1972): Modern Probability Theory and its Applications, John Wiley
8. Uspensky J.V. (1937): Introduction to Mathematical Probability, McGraw Hill
9. Cacoullos T. (1973): Exercises in Probability. Narosa
10. Rahman N.A. (1983): Practical Exercises in Probability and Statistics, Griffen
11. Pitman J. (1993): Probability, Narosa
12. Stirzaker D. (1994): Elementary Probability, Cambridge University Press
13. Chandra T.K. & Chatterjee D. (2001): A First Course in Probability, Narosa
14. Bhat B.R. (1999): Modern Probability Theory, New Age International

103 Linear Algebra

Vector Algebra: Vector spaces with real field, Basis and dimension of a vector space, Orthogonal vectors, Gram-Schmidt Orthogonalization. (7L)

Matrix Algebra : Linear transformation and Matrices, Matrix operations, Elementary matrices and their uses, Rank of a matrix and related results, Inverse of a matrix, Determinants, the Sweep-out and the Pivotal Condensation methods, Characteristic roots and vectors , Quadratic forms – classification and canonical reduction. (16L)

Systems of Linear Equations: Homogeneous and Non-homogeneous systems– conditions for solvability. (2L)

References:

1. Hadley G. (1995): Linear Algebra, Addison Wesley/ Narosa
2. Rao A.R. & Bhimasankaran P. (1996): Linear Algebra
3. Searle S.R. (1982): Matrix Algebra – useful for Statistics, John Wiley
4. Rao C.R. (1974): Linear Statistical Inference & its Applications, Wiley Eastern
5. Hoffman K. & Kunze R. (2001): Linear Algebra
6. Goon A.M. (1988): Vectors and Matrices

201 Descriptive Statistics II

Bivariate data – scatter diagram, correlation coefficient and its properties, Correlation ratio, Correlation Index, Intraclass correlation, Concept of Regression, Principles of least squares, Fitting of polynomial and exponential curves. Rank correlation – Spearman’s and Kendall’s measures. (17L)

Analysis of Categorical Data: Consistency of data, independence and association of attributes, measures of association – Pearson’s and Yule’s measures, Goodman-Kruskal’s γ . Odds Ratio. Fitting of logit model through least squares. (8L)

References :

1. Goon AM, Gupta MK, Dasgupta B. (1998): Fundamentals of Statistics (V-1), World Press
2. Yule G.U & Kendall M.G. (1950): An Introduction to the Theory of Statistics, C. Griffin
3. Kendall M.G. & Stuart A. (1966): Advanced Theory of Statistics (Vols 1 & 2)
4. Snedecor & Cochran (1967): Statistical Methods (6th ed), Iowa State Univ. Press
5. Croxton F.E., Cowden D.J. & Klein (1969): Applied General Statistics, Prentice Hall

6. Wallis F.E. & Roberts H.V. (1957): Statistics- a new approach, Methuen
7. Lewis-Beck M.S. (edt.) (1993) : Regression Analysis, Sage Publications
8. A.Agresti (1984): Analysis of Ordinal Categorical Data

202 Probability Theory II

Random Variables : Definition of discrete and continuous random variables, cumulative distribution function (c.d.f.) and its properties (with proof), probability mass function (p.m.f.) and probability density function (p.d.f.), Expectation and Moments, Dispersion, Skewness, Kurtosis, Quantiles (7L)

The c.d.f., p.m.f. and p.d.f. in bivariate case. Marginal and Conditional distributions, Independence, Conditional Expectation, Correlation and Regression. Theorems on sum and product of expectations of random variables, (15L)

Probability Inequalities: Markov's & Chebyshev's inequalities. (3L)

References:

1. Chung K.L. (1983): Elementary Probability Theory with Stochastic Process, Springer / Narosa
2. Feller W. (1968): An Introduction to Probability Theory & its Applications, John Wiley
3. Goon A.M., Gupta M.K. & Dasgupta B. (1994): An Outline of Statistical Theory(Vol-1), World Press
4. Rohatgi V.K. (1984): An Intro. to Probability Theory & Math. Statistics, John Wiley
5. Hoel P.J., Port S.C. & Stone C.J. () : Introduction to Probability Theory (Vol-1), Mifflin & UBS
6. Cramer H. (1954): The Elements of Probability Theory, John Wiley
7. Parzen E. (1972): Modern Probability Theory and its Applications, John Wiley
8. Uspesky J.V. (1937): Introduction to Mathematical Probability, McGraw Hill
9. Cacoullous T. (1973): Exercises in Probability. Narosa
10. Rahman N.A. (1983): Practical Exercises in Probability and Statistics, Griffen
11. Pitman J. (1993): Probability, Narosa
12. Stirzaker D. (1994): Elementary Probability, Cambridge University Press
13. Chandra T.K. & Chatterjee D. (2001): A First Course in Probability, Narosa
14. Bhat B.R. (1999): Modern Probability Theory, New Age International

203 Population Statistics

Introduction: Sources of Population Data – Census data, Registration data and the errors in such data. Rates and ratios of vital events. (2L)

Measurements of Mortality: Crude Death rate, Specific Death Rate, Standardized death Rate, Case fatality rate and Cause of Death Rate, Infant Mortality Rate, Neonatal and Perinatal Mortality Rates (6L)

Life tables: Descriptions of Complete and Abridged Life Tables and their uses, Cohort vs. Current Life Tables, Stable population and Stationary population, Construction of complete life table from population and death statistics. (5L)

Measurements of Fertility: Crude Birth Rate, General Fertility Rate, Age Specific Fertility Rate, Total Fertility Rate. (4L)

Measurement of Population Growth: Crude Rate of Natural Increase and Vital Index, Gross and Net Reproduction Rates. (3L)

Population Estimation, Projection and Forecasting: Use of A.P. and G.P. methods for population estimates, Fitting of Logistic curve for population forecasting using Rhode's method. (5L)

References :

1. Goon AM, Gupta MK, Dasgupta B (2001): Fundamentals of Statistics (V-2), World Press
2. Spiegelman M. (1980): Introduction to Demography, Harvard University Press
3. Cox P.R. (1976): Demography
4. Biswas S. (1988): Stochastic Processes in Demography and Applications
5. Mishra B.D. (1980): An Introduction to the Study of Population, South Asian Pub.
6. Keyfitz. N and Caswell. H (2005): Applied Mathematical Demography (3rd edition), Springer

301 Mathematical Methods

Numerical Methods (15 marks):

Approximation of numbers and functions, Absolute and Relative errors. (1L)

Interpolation: Polynomial approximation, Difference Table, Newton's Forward and Backward interpolation formulae and Lagrange's general interpolation formula, Error terms (5L)

Numerical Differentiation and its applications. (2L)

Numerical Integration: Trapezoidal and Simpson's $\frac{1}{3}$ rules. (2L)

Numerical solution of equations: method of fixed point iteration and Newton-Raphson method in one unknown, Conditions of convergence, rates of convergence. Extension of the iteration method to two unknowns (without convergence) (4L)

Stirling's approximation to factorial n. (1L)

Calculus of several variables (10 marks):

Maxima and minima for functions of several variables, Constrained maximization and minimization – use of Lagrange multiplier, Multiple integrals, Transformation of Variables and Jacobian, Polar and Orthogonal transformations (10L)

References :

1. Scarborough J.B. (1958): Numerical Mathematical Analysis, Oxford Univ. Press
2. Atkinson K. (1985): Elementary Numerical Analysis
3. Sastry S.S. (1998): Introductory Methods of Numerical Analysis
4. Hildebrand F.B. (1974): Introduction to Numerical Analysis, Tata McGraw-Hill
5. Apostol T.M. (1985): Mathematical Analysis, Narosa
6. Apostol T.M. (1968): Calculus (Vols 1 & 2)
7. Goldberg R.R. (1953): Methods of Real Analysis, Oxford & IBH Pub. Co.
8. Widder D.V. (1994): Advanced Calculus
9. Piskunov N. (1977): Calculus (Vols 1 & 2)
10. Malik S.C. & Arora S. (1991): Mathematical Analysis

302 Probability Theory III

Generating Functions: Probability generating function and moment generating function in the univariate and bivariate cases. (3L)

Univariate Discrete Distributions: Uniform, Bernoulli, Hypergeometric, Binomial, Poisson, Negative Binomial, Geometric distributions and their properties. (7L)

Univariate Continuous Distributions: Rectangular, Normal (Normal approximation to the Poisson distribution), Cauchy, Gamma, Beta, Exponential, Laplace, Logistic, Pareto, Log-normal distributions and their properties. Truncated distributions. (9L)

Scaling methods: Z, Percentile, Thurstone, Equivalent scaling procedures (3L)

Bivariate Normal Distribution and its properties. (3L)

References:

1. Chung K.L. (1983): Elementary Probability Theory with Stochastic Process, Springer / Narosa
2. Feller W. (1968): An Introduction to Probability Theory & its Applications, John Wiley
3. Goon A.M., Gupta M.K. & Dasgupta B. (1994): An Outline of Statistical Theory (Vol-1), World Press
4. Rohatgi V.K. (1984): An Intro. to Probability Theory & Math. Statistics, John Wiley
5. Hoel P.J., Port S.C. & Stone C.J. (): Introduction to Probability Theory (Vol-1), Mifflin & UBS
6. Cramer H. (1954): The Elements of Probability Theory, John Wiley
7. Parzen E. (1972): Modern Probability Theory and its Applications, John Wiley
8. Uspesky J.V. (1937): Introduction to Mathematical Probability, McGraw Hill
9. Cacoullous T. (1973): Exercises in Probability. Narosa
10. Rahman N.A. (1983): Practical Exercises in Probability and Statistics, Griffen
11. Pitman J. (1993): Probability, Narosa
12. Stirzaker D. (1994): Elementary Probability, Cambridge University Press
13. Chandra T.K. & Chatterjee D. (2001): A First Course in Probability, Narosa
14. Bhat B.R. (1999): Modern Probability Theory, New Age International

303 Official and Economic Statistics

Official Statistics (Marks 10)

The Statistical system in India: The Central and State Government organizations, the functions of the Central Statistical Organization (CSO), the National Sample Survey Organization (NSSO) (4L)

National Income statistics: Income, expenditure and production approaches. Their applications in various sectors in India (6L)

Economic Statistics (Marks 15)

Index Numbers: Price, Quantity and Value indices. (1L)

Price Index Numbers: Construction, Uses, Limitations, Tests for index numbers, Various formulae and their comparisons, Chain Index Number. (7L)

Some Important Indices: Consumer Price Index, Wholesale Price Index and Index of Industrial Production – methods of construction and uses. (3L)

Measurement of income inequality: Gini's coefficient, Lorenz curves, Application of Pareto and Lognormal as income distributions (4L)

References:

1. C.S.O. (1984) : Statistical System in India
2. Goon A. M.,Gupta M. K., and Dasgupta. B. (2001): Fundamentals of Statistics (V-2), World Press
3. Yule G.U. & Kendall M.G. (1953): An Introduction to the Theory of Statistics, C.Griffin
4. Kendall M.G. & Stuart A. (1966): Advanced Theory of Statistics (Vol 3), C.Griffin
5. Croxton F.E., Cowden D.J. & Klein (1969): Applied General Statistics, Prentice Hall
6. Mudgett B.D. (1951): Index Numbers, John Wiley
7. Allen R.G.D. (1975): Index Numbers in Theory and Practice, Macmillan
8. Mukhopadhyay P. (1999): Applied Statistics
9. Johnston J. & Dinardo J. (1997): Econometric Methods, McGraw Hill
10. Nagar A.L. & Das R.K. (1976): Basic Statistics

401 Sampling Distributions

Introduction: Concepts of Random Sampling, Statistics and Sampling Distributions of Statistics. Illustrations using different distributions, reproductive properties of the distributions. (7L)

Some Standard Sampling Distributions : χ^2 distribution, distributions of the mean and variance of a random sample from a normal population, t and F distributions, distributions of means, variances and correlation coefficient (null case) of a random sample from a bivariate normal population, distribution of the simple regression coefficient (for both stochastic and non-stochastic independent variable cases). (13L)

Distributions of Order Statistics and Sample Range. (5L)

References:

1. Goon A.M., Gupta M.K. & Dasgupta B. (1994): An Outline of Statistical Theory (Vol-1), World Press
2. Johnson, N.I. & Kotz S. (1970): Distributions in Statistics, John Wiley
3. Ross S.M. (1972): Introduction to Probability Models, Academic Press
4. Mood A.M., Graybill F. & Boes D.C. (1974): An Introduction to the Theory of Statistics (3rd ed), McGraw Hill
5. Rao C.R. (1952): Advanced Statistical Methods in Biometric Research, John Wiley
6. Hogg R.V. & Craig A.T. (1978): Introduction to Mathematical Statistics
7. Rohatgi V.K. (1984): An Introduction to Probability Theory & Mathematical Statistics, John Wiley
8. Stuart G & Ord J.K. (1991): Advanced Theory of Statistics (Vol 2), Charles Griffin
9. Goon A. M., Gupta M. K.and Dasgupta B. (1997): Fundamentals of Statistics (V-1), World Press
10. Bhattacharya GK & Johnson R. A. (1977): Concepts & Methods of Statistics, John Wiley

402 Statistical Inference I

Idea of Inference - Point & Interval Estimations and Testing of Hypothesis (2L)

Point estimation: Requirements of a good estimator – notions of Mean Square Error, Unbiasedness: Minimum Variance Unbiasedness and Best Linear Unbiasedness, Sufficiency, Factorization Theorem (Discrete case only), Properties of minimum variance unbiased estimators, consistent estimators and asymptotic efficiency, Cramer-Rao lower bound, Rao-Blackwell Theorem. (17L)

Methods of Estimation – Moment, Least-square, Maximum Likelihood & Minimum χ^2 methods and their properties (excluding proofs of large sample properties). (6L)

References:

1. Goon A.M., Gupta M.K. & Dasgupta B. (1994): An Outline of Statistical Theory (Vol-1), World Press
2. Johnson, N.I. & Kotz S. (1970): Distributions in Statistics, John Wiley
3. Ross S.M. (1972): Introduction to Probability Models, Academic Press
4. Mood A.M., Graybill F. & Boes D.C. (1974): An Introduction to the Theory of Statistics (3rd ed), McGraw Hill
5. Rao C.R. (1952): Advanced Statistical Methods in Biometric Research, John Wiley
6. Hogg R.V. & Craig A.T. (1978): Introduction to Mathematical Statistics
7. Rohatgi V.K. (1984): An Introduction to Probability Theory & Mathematical Statistics, John Wiley
8. Stuart G & Ord J.K. (1991): Advanced Theory of Statistics (Vol 2), Charles Griffin
9. Goon A. M., Gupta M. K. and Dasgupta B. (1997): Fundamentals of Statistics (V-1), World Press
10. Bhattacharya GK & Johnson R. A. (1977): Concepts & Methods of Statistics, John Wiley

403 Statistical Quality Control

Introduction: Concepts of Quality and Quality Control, Process Control and Product Control (5L)

Process Control: Control Charts and their uses, Choice of Subgroup sizes, Construction of control charts by attributes (p, c, np) (including unequal subgroup size) and variables (\bar{x} , R). Interpretation of non-random patterns of points. (10L)

Product Control: Producer's Risk, Consumer's Risk, Acceptance Sampling Plan, Single and Double sampling plans by attributes, their OC, ASN (and ATI), LTPD and AOQL. Single sampling plan for inspection by variables (one-sided specification, known and unknown σ cases), Use of IS plans and tables (10L)

References :

1. Goon A. M., Gupta M. K., Dasgupta B. (2001): Fundamentals of Statistics (V-2), World Press
2. Duncan A.J. (1953): Quality Control and Industrial Statistics, Richard D Irwin
3. Cowden D.J. (1957): Statistical Methods in Quality Control, Prentice Hall
4. Grant E.L. & Leavenworth (1964): Statistical Quality Control, McGraw Hill
5. Bowley A.H. & Goode H.P. (1952): Sampling Inspection by Variables, McGraw Hill
6. Ekamparam S. K. (1960): The Statistical Basis of Quality Cont. Charts, Asia Publishing House
7. Montgomery D.C. (1985): Introduction to Statistical Quality control, John Wiley
8. IS2500 Part I and Part II
9. Bureau of Indian Standards (1994): Handbook on Statistical quality Control
10. Indian Standards Institution (1982): Manual on Basic Principles of Lot Sampling

501 Multivariate Analysis

Multivariate data – multiple regression, multiple correlation and partial correlation – their properties and related results. (8L)

Random Vector: Probability mass and density functions, Distribution Function, Mean vector and Dispersion matrix, Marginal and Conditional Distributions, Ellipsoid of Concentration, Multiple Regression, Multiple Correlation, Partial Correlation. (9L)

Multivariate Distributions: Multinomial, Multivariate Normal distributions and their properties. (8L)

References:

1. Kendall M.G. & Stuart A. (1966): Advanced Theory of Statistics (Vol 3), C.Griffin
2. Anderson T.W. (1958): An Introduction to Multivariate Statistical Analysis, 3rd edition, Wiley interscience
3. Goon A.M., Gupta M.K. & Dasgupta B. (1994): An Outline of Statistical Theory (Volumes 1 & 2), World Press
4. Rohatgi V.K. (1984): An Introduction to Probability Theory & Math. Statistics, John Wiley
5. Johnson, N.L. & Kotz S. (1970): Distributions in Statistics, John Wiley
6. Hogg R.V. & Craig A.T. (1978): Introduction to Mathematical Statistics
7. Rao C.R. (1974): Linear Statistical Inference and its Applications, John Wiley
8. Mukhopadhyay P. (1996): Mathematical Statistics
9. Johnson R. A. and Wichern, W (2001): Applied Multivariate Statistical Analysis, 5th edition, Prentice Hall

502 Statistical Inference II

Test of significance (Marks 15)

Elements of Hypothesis Testing : Null and Alternative hypotheses, Simple and Composite hypotheses, Critical Region, Type I and Type II Errors, Level of Significance and Size, p-value, Power (4L)

Tests of Significance related to a single Binomial proportion and Poisson parameter; two Binomial proportions and Poisson parameters; the mean(s) and variance(s) of a single univariate normal distribution, two independent normal distributions and a single bivariate normal distribution; regression and correlation coefficients of a single bivariate normal distribution, Combination of Probabilities in tests of significance (11L)

Analysis of Variance (ANOVA) (Marks 10)

Introduction: Heterogeneity and Analysis of Variance and Covariance, Linear Hypothesis, Orthogonal splitting of total variation, Selection of Valid Error. (3L)

Applications of the ANOVA technique to: one-way classified data, two-way classified data with equal number of observations per cell, testing simple regression coefficients, tests for parallelism and identity, correlation ratio, linearity of simple regression, multiple correlation and partial correlation coefficients. (7L)

References :

1. Goon A.M., Gupta M.K. & Dasgupta B. (1994): An Outline of Statistical Theory (Vol-2), World Press
2. Mood A.M., Graybill F. & Boes D.C. (1974): An Introduction to the Theory of Statistics (3rd ed), McGraw Hill
3. Rao C.R. (1952): Advanced Statistical Methods in Biometric Research, John Wiley
4. Hogg R.V. & Craig A.T. (1978): Introduction to Mathematical Statistics
5. Rohatgi V.K. (1984): An Introduction to Probability Theory & Mathematical Statistics, John Wiley
6. Stuart G & Ord J.K. (1991): Advanced Theory of Statistics (Vol 2), Charles Griffin
7. Goon A. M., Gupta M. K. and Dasgupta B. (1997): Fundamentals of Statistics (V-1 and 2), World Press
8. Bhattacharya GK & Johnson R. A. (1977): Concepts & Methods of Statistics, John Wiley
9. Scheffe H. (1959): The Analysis of Variance, John Wiley

503 Introduction to Designs of Sample Survey and Experiments

Introduction to Sample Survey (Marks 10)

Introduction: Concepts of Finite Population and Sample, Need for Sampling, Complete Enumeration and Sample Surveys. (2L)

General Ideas: Planning and execution of sample surveys, analysis of data and reporting, Biases and Errors. Judgement and probability sampling schemes. Tables of Random Numbers and their uses (3L)

Simple Random Sampling with and without replacement, Determination of sample size in simple random sampling. (5L)

Introduction to Design of Experiments (Marks 15)

Principles of experimental design: Randomization, Replication and Local Control, Uniformity trials, Shapes and Sizes of Plots and Blocks. (4L)

Standard Designs and their Analyses: Completely Randomized Design (CRD), Randomized Block Design (RBD), Latin Square Design (LSD), comparison of efficiencies. Applications of the techniques of ANOVA to the analysis of the above designs. (11L)

References:

1. Goon A. M. ,Gupta M. K., Dasgupta B.(2001): Fundamentals of Statistics (V-2),World Press
2. Murthy M.N. (1977): Sampling Theory and Methods, Statistical Pub. Soc., Calcutta
3. Des Raj & Chandhok P.(1998): Sample Survey Theory, Narosa Publishing House
4. Cochran W.G. (1984): Sampling Techniques (3rd edition), Wiley Eastern
5. Mukhopadhyay P. (1998): Theory and Methods of Survey Sampling, Prentice Hall
6. Sukhatme P.V. & Sukhatme B.V. (1970): Sampling Theory of Surveys with, Asia Publishing House
7. Sampathy S. (2001): Sampling Theory and Methods, Narosa
8. NSSO Publications
9. Kempthorne O. (1965): The Design and Analysis of Experiments, Wiley Eastern
10. Das M.N. & Giri N.C. (1986) : Design and Analysis of Experiments. (2nd edition), Wiley Eastern
11. Montgomery D.C. (1976): Design and Analysis of Experiments, John Wiley
12. Cochran W.G. & Cox G.M. (1957): Experimental Designs, John Wiley
13. Federer W.T. (1975): Experimental Designs – Theory and Application, Oxford & IBH
14. Mukhopadhyay P. (1999): Applied Statistics

504 Time Series Analysis

Introduction: Examples of time series from various fields, Components of a times series, Additive and Multiplicative models. (2L)

Trend and Seasonal Components: Estimation of trend by linear filtering (simple and weighted moving-averages) and curve fitting (polynomial, exponential and Gompertz), Detrending. Estimation of seasonal component by ratio to moving-average method, ratio to trend method, Deseasonalization. (10L)

Stationary Time series: Weak stationarity, Autocorrelation Function and Correlogram (4L)

Some Special Processes: Moving-average (MA) process and Autoregressive (AR) process of orders one and two, Estimation of the parameters of AR(1) and AR(2) – Yule-Walker equations (7L)

Exponential smoothing method of forecasting (2L)

References:

1. Kendall M.G. (1976): Time Series, Charles Griffin
2. Chatfield C. (1980): The Analysis of Time Series –An Introduction, Chapman & Hall
3. Mukhopadhyay P. (1999): Applied Statistics
4. Johnston J. & Dinardo J. (1997): Econometric Methods, McGraw Hill

601 Large Sample Theory

Convergence in Probability, Weak Law of Large Numbers and its applications, Convergence in Distribution, DeMoivre Laplace limit theorem, Statement of Central Limit Theorem (i.i.d. case) & its applications. (8L)

Delta method, Derivation of large sample standard error of sample moments, standard deviation, coefficient of variation, b_1 and b_2 measures, and correlation coefficient and their uses in large sample tests under normality assumption, Large sample distribution of sample quantile (8L)

Transformations of Statistics to stabilize variance: derivation and use of Sin^{-1} , square root, logarithmic and z-transformations. (3L)

Large sample tests for binomial proportions, Poisson means (single and two independent samples cases) and correlation coefficients.. (3L)

Large Sample distribution of Pearsonian χ^2 –statistic and its uses. Yate’s correction in a 2 x 2 contingency table. (3L)

References:

1. Goon A.M., Gupta M.K. & Dasgupta B. (1994): An Outline of Statistical Theory (Vol-1 and 2), World Press
2. Serfling R.J. (1980): Approximation Theory of Mathematical Statistics, John Wiley
3. Chandra T.K. (1999): A First Course in Asymptotic Theory in Statistics, Narosa
4. Hogg R.V. & Craig A.T. (1978): Introduction to Mathematical Statistics

602 Statistical Inference III

Theory of Hypothesis Testing: Most Powerful (MP), Uniformly Most Powerful (UMP), Randomized and Nonrandomized tests, Neyman-Pearson Fundamental Lemma (sufficiency part only), and its use in the construction of MP and UMP tests (single parameter with range independent of the), Uniformly Most Powerful Unbiased (UMPU) tests (definition only). (9L)

Likelihood Ratio tests and its applications to tests for the equality of means and variances of several normal populations. (5L)

Interval Estimation: Confidence intervals, Concepts of Uniformly Most Accurate (UMA) confidence sets, relationship with tests of hypotheses. (3L)

Nonparametric Methods: Sign test, Mann-Whitney test, Run test, Test of randomness, Confidence limits for Quantiles based on Sign test statistic. (8L)

References :

1. Goon A.M., Gupta M.K. & Dasgupta B. (1994): An Outline of Statistical Theory (Vol-2), World Press
2. Mood A.M., Graybill F. & Boes D.C. (1974): An Introduction to the Theory of Statistics (3rd ed), McGraw Hill
3. Rao C.R. (1952): Advanced Statistical Methods in Biometric Research, John Wiley
4. Hogg R.V. & Craig A.T. (1978): Introduction to Mathematical Statistics
5. Rohatgi V.K. (1984): An Introduction to Probability Theory & Mathematical Statistics, John Wiley
6. Stuart G & Ord J.K. (1991): Advanced Theory of Statistics (Vol 2), Charles Griffin
7. Goon A. M., Gupta M. K. and Dasgupta B. (1997): Fundamentals of Statistics (V-1 and 2), World Press
8. Bhattacharya GK & Johnson R. A. (1977): Concepts & Methods of Statistics, John Wiley

603 Design of Experiments

Split Plot Design and Strip arrangements. (3L)

Groups of Experiments using RBD and LSD (3L)

Factorial Experiments: 2^n experiments, Advantages, Total and Partial Confounding, Analysis (10L)

Missing Plot Technique: Analysis with one missing plot in a RBD and in a LSD. (4L)

Analysis of Covariance (ANCOVA): Application of the ANCOVA technique to one-way classified data and to two-way classified data with equal number of observations per cell, use in the control of error in CRD, RBD and LSD. (5L)

References:

1. Kempthorne O. (1965): The Design and Analysis of Experiments, Wiley Eastern
2. Das M.N. & Giri N.C. (1986) : Design and Analysis of Experiments. (2nd edition), Wiley Eastern
3. Montgomery D.C. (1976): Design and Analysis of Experiments, John Wiley
4. Cochran W.G. & Cox G.M. (1957): Experimental Designs, John Wiley
5. Federer W.T. (1975): Experimental Designs – Theory and Application, Oxford & IBH
6. Mukhopadhyay P. (1999): Applied Statistics

604 Sample Survey Methods

Stratified random sampling, Linear and Circular Systematic Sampling, Cluster sampling, Two -stage (with equal-sized first stage units) sampling with equal selection probabilities at each stage. Associated unbiased estimators of population total, mean, and proportion, their variances and unbiased variance estimators. Allocation problem in stratified random sampling and optimum choice of sampling and sub-sampling fractions in two - stage sampling, Interpenetrating sub-sampling technique for unbiased variance estimation in systematic sampling (18L)

Ratio and Regression methods of estimation in simple random sampling. Double sampling for ratio and regression estimators. (5L)

Randomized Response Techniques: Warner's Model. (2L)

References:

1. Goon A. M. ,Gupta M. K., Dasgupta B.(2001): Fundamentals of Statistics (V-2),World Press
2. Murthy M.N. (1977): Sampling Theory and Methods, Statistical Pub. Soc., Calcutta
3. Des Raj & Chandhok P.(1998): Sample Survey Theory, Narosa Publishing House
4. Cochran W.G. (1984): Sampling Techniques (3rd edition), Wiley Eastern
5. Mukhopadhyay P. (1998): Theory and Methods of Survey Sampling, Prentice Hall
6. Sukhatme P.V. & Sukhatme B.V. (1970): Sampling Theory of Surveys with, Asia Publishing House
7. Sampathy S. (2001): Sampling Theory and Methods, Narosa

Practical (Honours) Course Structure

Paper	Course structure
1; 104 (Paper IIB in annual system)	<ol style="list-style-type: none"> 1. Respective practical problems (without using computer) covering papers - Descriptive Statistics I (101) and Linear Algebra (103) – 20 marks 2. Computer course – 5 marks <ol style="list-style-type: none"> (a) Number system – Binary, Octal, Hexadecimal; Binary arithmetic (b) Use of EXCEL: <ol style="list-style-type: none"> (i) Workbook and worksheets; working with worksheets to calculate different order moments etc. (ii) Use of functions- Some Statistical and mathematical functions, (iii) Creating easy to understand charts
2; 204 (Paper IIB in annual system)	<ol style="list-style-type: none"> 1. Respective practical problems (without using computer) covering papers - Descriptive Statistics II (201) and Population Statistics (203) – 20 marks 2. Computer course – 5 marks <ol style="list-style-type: none"> (a) Use of EXCEL: (b) (i) Worksheet (ii) Use of functions
3; 304 (Paper IVB in annual system)	<ol style="list-style-type: none"> 1. Respective practical problems (without using computer) covering papers – Mathematical Methods (301) and Official & Economic Statistics (303) – 20 marks 2. Computer course – 5 marks <ol style="list-style-type: none"> (a) MINITAB syllabus Use of different menus- manipulation, calculation, statistics, graph, editor <p style="margin-left: 40px;">Practical Exercises using data:</p> <ol style="list-style-type: none"> (i) Drawing of different charts and graphs (Histogram, Stem and leaf, box, Scatter, matrix plot) (ii) Computation and interpretation of mean, median, mode, SD, Mean deviation and quartiles. (iii) Computation and interpretation of correlation coefficient , regression line (iv) Matrix addition, multiplication, Diagonalisation, Inversion.
4; 404 (Paper IVB in annual system)	<ol style="list-style-type: none"> 1. Respective practical problems (without using computer) covering papers – Statistical Inference I (402) and Statistical Quality Control (403)– 20 marks 2. Computer course – 5 marks <ol style="list-style-type: none"> (a) Computer software- operating system, computer languages- machine language, high level language, statistical packages. (b) Algorithm and flow charts (c) Introduction to C programming- <ol style="list-style-type: none"> (i) Basic structure of a C program (explanation with a simple program) (ii) Constants, variables and declarations (iii) Selected library functions (iv) Simple input-output statements (v) Operators – arithmetic, increment and decrement (vi) Looping structure: “for” loop (vii) Some selected C programs: addition, multiplication, calculation of mean, computation of different order moments, correlation, and fitting straight line to a given

	data set.
5; 505 (Paper VIIIA in annual system)	Respective practical problems (without using computer) covering papers – Multivariate Analysis (501), Statistical Inference II (502)
5; 506 (Paper VIIIA in annual system)	Respective practical problems (without using computer) covering papers – Introduction to Designs of Sample Survey and Experiments (503), Time Series Analysis (504)
5; 507 (Paper VIIIA in annual system)	Computer Programming: <ol style="list-style-type: none"> 1. More on input-output statements 2. Operator - relational and logical, conditional operator 3. More on library functions 4. Data type 5. Decision making and branching- If, If-else, Nesting of if statement, go to statement 6. Arrays 7. Some selected C programs: <ol style="list-style-type: none"> (i) Selection and Bubble sort, Computation of quantiles, Computation of Spearman's rank correlation coefficient (no tie case) (ii) Fitting of Binomial and Poisson distributions (iii) Interpolation by Lagrange's formula.
5; 508 (Paper VIIIA in annual system)	Computer Programming: <ol style="list-style-type: none"> 1. More on looping structure (control statement) – while, do while 2. Use of Functions 3. File structure 4. Some suggested C programs: <ol style="list-style-type: none"> (i) Numerical integration (Trapezoidal and Simpson's 1/3 rule) with convergence; (ii) Solution of numerical equations by Newton Raphson and iterative method (single variable); (iii) Addition, multiplication, transpose of matrices (iv) Trace, determinant and inverse of square matrices (v) Generation of random samples from Normal, Chi-square, t and F distributions.
6; 605 (Paper VIIB in annual system)	Respective practical problems (without using computer) covering papers – Large Sample Theory (601), Statistical Inference III (602)
6; 606 (Paper VIIB in annual system)	Respective practical problems (without using computer) covering papers –Design of Experiments (603) , Sample Survey Methods (604)
6; 607 (Paper VIIB in annual system)	Computation and Data Analysis encompassing all topics taught in the six semesters. Use may be made of all computational methods taught in all the semesters along with analysis tool pack of EXCEL (not covered in Paper 204) and modules of MINITAB (not covered in Paper 304)
6; 608 (Paper VIIB in annual system)	Computation and Data Analysis encompassing all topics taught in the six semesters. Use may be made of all computational methods taught in all the semesters along with analysis tool pack of EXCEL (not covered in Paper 204) and modules of MINITAB (not covered in Paper 304)

Rules for the Practical Examinations

For the Part I examination, the Practical Examination (for Paper IIB) will be of 5 (FIVE) hours duration including problems to be solved with EXCEL. The Notebooks need to be submitted during the course of the examination. The Viva-Voce will either be held concurrently with the examination or a separate day may be allotted for it depending on the discretion of the examiners and to be decided in the meeting of the UG Board of Studies.

For the Part II examination, the Practical Examination (for Paper IVB) will be of 5 (FIVE) hours duration including problems to be solved with MINITAB and C. The Notebooks need to be submitted during the course of the examination. The Viva-Voce will either be held concurrently with the examination or a separate day may be allotted for it depending on the discretion of the examiners and to be decided in the meeting of the UG Board of Studies.

For the Part III examination, the Practical Examination for the two papers viz. Papers VIIA and VIIB will be held on two separate days each of 5 (FIVE) hours duration. The Notebooks need to be submitted during the course of the examination. The Viva-Voce will either be held concurrently with the examination or on a separate day depending on the discretion of the examiners and to be decided in the meeting of the UG Board of Studies.

The examination for Papers VIIIA and VIIIB will be held on two separate days each of 5 (FIVE) hours duration. This examinations may be held in batches (on the same or on separate days) or simultaneously for all students depending on the availability of computers. The Viva-Voce will be held during the course of the examination. A Practical Notebook, comprising of the exercises pertaining to *Computer Programming* corresponding to Paper VIIIA done during the year, will need to be submitted during the course of the examination for evaluation. *For these two practical papers it is imperative that the respective colleges arrange for their own computers and printers and allow the students sufficient time to practice on them so that they are able to compile their Practical Notebook as also to ready themselves for the examination.* If necessary, the examination for this paper may also be held in the colleges which must make sure of the availability of sufficient computers and printers for the purpose for the benefit of their students. The Viva-Voce will either be held concurrently with the examination or on a separate day depending on the discretion of the examiners and to be decided in the meeting of the UG Board of Studies.

GENERAL

101 Descriptive Statistics I

Types of statistical data, Compilation, Classification, Tabulation and Diagrammatic representation of data, Frequency Distribution, Cumulative Distribution and their graphical representation, Histogram, Frequency Polygon, Frequency Curve and Ogive. (11L)

Analysis of Univariate Quantitative Data – concepts of central tendency, dispersion, relative dispersion, skewness and kurtosis and their measures based on quantiles and moments. (14L)

References:

1. Goon A.M., Gupta M. & Dasgupta B.(2001) : Fundamentals of Statistics (Vol. 1), World Press
2. Yule G.U. & Kendall M.G.(1950) : Introduction to the Theory of Statistics, Charles Griffin
3. Nagar A.L. & Das R.K. (1976): Basic Statistics
4. Bhattacharyya G. K. & Johnson R. A. (1977) : Concepts & Methods of Statistics, J.Wiley

102 Probability I

Random Experiments and Random Events, Statistical regularity and meaning of Probability, Classical and Axiomatic definitions of Probability (discrete sample space only), Conditional Probability, Independence of Events, Principal Theorems including union and intersection of events and Bayes Theorem. (13L)

Random Variable and its Probability Distribution, Cumulative Distribution Function, Probability Mass Function and Probability Density Function, Mathematical Expectation, Variance and Moments. Joint Distribution of two random variables, Marginal and Conditional distributions, Covariance and Correlation, Simple Theorems including theorems on expectation and variance of a sum of random variables and expectation of product of random variables. (12L)

References:

1. Goon A.M., Gupta M. & Dasgupta B.(1997): An Outline of Statistics(Vol 1), World Press
2. Feller W.(1968) : An Introduction to Probability Theory & its Applications, John Wiley
3. Cacoullos T. (1973): Exercises in Probability, Narosa
4. Bhattacharyya G. K. & Johnson R. A. (1977) : Concepts & Methods of Statistics, J.Wiley
5. Freund J.E. (2001): Mathematical Statistics, Prentice Hall
6. Pitman J. (1993): Probability, Narosa
7. Stirzaker D. (1994): Elementary Probability, Cambridge University Press
8. Rathie and Mathai: Probability and Statistics

201 Descriptive Statistics II

Fitting of Binomial, Poisson and Normal distributions (2L)

Analysis of Bivariate Quantitative Data – Scatter Diagram, Product Moment Correlation Coefficient and its properties, Regression Analysis, Fitting of Linear and Polynomial equations by the principle of Least Squares, Correlation Index, Spearman's Rank Correlation Coefficient. (15L)

Analysis of Multivariate Quantitative Data – Multiple Regression, Multiple Correlation and Partial Correlation in *three* variables, their measures and related results. (8L)

References:

1. Goon A.M., Gupta M. & Dasgupta B.(2001) : Fundamentals of Statistics (Vol. 1), World Press
2. Yule G.U. & Kendall M.G.(1950) : Introduction to the Theory of Statistics, Charles Griffin
3. Nagar A.L. & Das R.K. (1976): Basic Statistics
4. Bhattacharyya G. K. & Johnson R. A. (1977) : Concepts & Methods of Statistics, J.Wiley

202 Probability II

Standard Univariate Discrete Distributions and their properties – Discrete Uniform, Binomial, Poisson, Hypergeometric, Geometric and Negative Binomial distributions (10L)

Standard Univariate Continuous Distributions – Uniform, Normal, Exponential, Gamma, Beta and Lognormal distributions, Bivariate Normal distribution and statement of its general properties (10L)

Chebychev's Inequality, Weak Law of Large Numbers, Statement of Central Limit Theorem (i.i.d. case) and its uses. (5L)

References:

1. Goon A.M., Gupta M. & Dasgupta B.(1997): An Outline of Statistics(Vol 1), World Press
2. Feller W.(1968) : An Introduction to Probability Theory & its Applications, John Wiley
3. Cacoullos T. (1973): Exercises in Probability, Narosa
4. Bhattacharyya G. K. & Johnson R. A. (1977) : Concepts & Methods of Statistics, J.Wiley
5. Freund J.E. (2001): Mathematical Statistics, Prentice Hall
6. Pitman J. (1993): Probability, Narosa
7. Stirzaker D. (1994): Elementary Probability, Cambridge University Press
8. Rathie and Mathai: Probability and Statistics

301 Sampling Distributions and Point Estimation

Concepts of Population and sample, Random Sampling and Sampling Distributions of Statistics, sampling distribution of sum of independent Binomial and Poisson variables, χ^2 , t and F distributions (derivations excluded), sampling distribution of mean and variance of independent Normal variables.

(13L)

Point Estimation of a population parameter – concepts of Bias and Standard Error of an estimator, concepts of Unbiasedness, Minimum Variance, Consistency and Efficiency of an estimator, Method of Moments, Maximum Likelihood Method of estimation, Method of Least Squares, Point estimators of the parameters of Binomial, Poisson, and univariate Normal distributions.

(12L)

References:

1. Goon A.M., Gupta M. & Dasgupta B.(1997) : An Outline of Statistics (Vol 1), World Press
2. Goon A.M.,Gupta M.& Dasgupta B.(2001): Fundamentals of Statistics (Vol 1), World Press
3. Mood A.M., Graybill F. & Boes D.C.(1974) : An Introduction to the theory of Statistics (3rd ed.), McGraw Hill
4. Rohatgi V.K. (1984): An Introduction to Probability Theory and Mathematical Statistics, John Wiley
5. Goon A.M.,Gupta M.& Dasgupta B.(2001): Fundamentals of Statistics (Vol 1), World Press

302 Economic Statistics, Time Series Analysis

Economic Statistics: Index Number –construction and use of price index numbers and tests in connection with them, Consumer and Wholesale price index numbers, their uses and major steps in their construction.

(12L)

Time Series Analysis: Different components of a times series, determination of Trend by method of simple moving-averages and by fitting mathematical curves by least squares principle, determination of seasonal indices by methods of trend ratios and ratios to moving averages.

(13L)

References:

1. Goon A.M.,Gupta M.& Dasgupta B.(2001): Fundamentals of Statistics (Vol 2), World Press
2. Yule G.U.& Kendall M.G.(1950) : Introduction to the Theory of Statistics, Charles Griffin
3. Nagar A.L. & Das R.K. (1976): Basic Statistics
4. Mukhopadhyay P. (1999): Applied Statistics
5. Croxton F. E., Cowden D. J. & Klein (1969) : Applied General Statistics, Prentice Hall

401 Statistical Inference

Statistical tests of Hypotheses – Null and Alternative hypotheses, Types of Errors, Critical Region, Level of Significance, Power and p-values, Exact tests of hypotheses under Normal set-up for a single mean, the equality of two means, a single variance and the equality of two variances, Test of Significance of sample correlation coefficient (null case) and tests of hypotheses for the equality of means and equality of variances of a bivariate Normal distribution. (13L)

Interval Estimation – Confidence Interval and Confidence Coefficient, Exact confidence interval under Normal set-up for a single mean, single variance, the difference of two means and the ratio of two variances. (5L)

Large Sample Tests and related Interval Estimates of a single mean and a single proportion and difference of two means & two proportions, Pearsonian χ^2 tests for goodness of fit & for homogeneity and independence in a contingency table. (7L)

References:

1. Goon A.M., Gupta M. & Dasgupta B.(1997) : An Outline of Statistics (Vol 1), World Press
2. Goon A.M., Gupta M.& Dasgupta B.(2001): Fundamentals of Statistics (Vol 1), World Press
3. Mood A.M., Graybill F. & Boes D.C.(1974) : An Introduction to the theory of Statistics (3rd ed.), McGraw Hill
4. Rohatgi V.K. (1984): An Introduction to Probability Theory and Mathematical Statistics, John Wiley
5. Goon A.M.,Gupta M.& Dasgupta B.(2001): Fundamentals of Statistics (Vol 1), World Press

402 Population Statistics and Statistical Quality Control

Population Statistics:

Vital events, Rates and Ratios, Measurement of Mortality – Crude, Specific and Standardized death rates, Complete Life Table, Measurement of Fertility and Reproduction – Crude Birth Rate, General, Specific and Total fertility rates, Gross and Net reproduction rates. (14L)

Statistical Quality Control:

Advantages of statistical quality control, Construction of control charts by attributes (p, c, np) and variables (\bar{x} , R). (7L)

Sampling Inspection Plan by attributes, OC, ASN (and ATI), LTPD and AOQL for single sampling plan (4L)

References:

1. Goon A.M.,Gupta M.& Dasgupta B.(2001): Fundamentals of Statistics (Vol 2), World Press
2. Yule G.U.& Kendall M.G.(1950) : Introduction to the Theory of Statistics, Charles Griffin
3. Nagar A.L. & Das R.K. (1976): Basic Statistics
4. Mukhopadhyay P. (1999): Applied Statistics
5. Croxton F. E., Cowden D. J. & Klein (1969) : Applied General Statistics, Prentice Hall

501 Sample Survey Methods:

Concepts of population and sample, Need for sampling, Stages in the design and conduct of sample surveys. Concept of probability sampling, Random Number tables. Simple random sampling with and without replacement (8L)

Stratified random sampling – associated unbiased estimators of population mean, total and proportion, their variances and unbiased variance estimators, Linear Systematic sampling, Two-stage sampling (with primary units of equal size and equal selection probability at each stage) – unbiased estimation of population mean and total. (17L)

References:

1. Goon A.M., Gupta M. & Dasgupta B. (2001): Fundamentals of Statistics (Vol 2), World Press
2. Cochran W.G. (1984): Sampling Techniques (3rd ed.), Wiley Eastern
3. Nagar A.L. & Das R.K. (1976): Basic Statistics
4. Mukhopadhyay P. (1999): Applied Statistics

601 Design & Analysis of Experiments

Analysis of Variance in one-way classified data and two-way classified data with equal number of observations in each cell. (10L)

Basic principles of design – Randomization, Replication and Local Control, Completely Randomized design, Randomized Block design and Latin Square design, applications of the technique of Analysis of Variance for the analysis of data collected under these designs. (15L)

References:

1. Goon A.M., Gupta M. & Dasgupta B. (2001): Fundamentals of Statistics (Vol 2), World Press
2. Kempthorne O. (1965): The Design & Analysis of Experiments, Wiley Eastern
3. Nagar A.L. & Das R.K. (1976): Basic Statistics
4. Mukhopadhyay P. (1999): Applied Statistics

Question Pattern for B.Sc. Honours Examinations in Statistics (1+1+1) - 2010

Theoretical

Part I

Paper IA:

- Short Questions of 5 marks each: No. of questions to be given = 8
No. of questions to be answered = 4
Total marks = $5 \times 4 = 20$
- Broad Questions of 15 marks each: No. of questions to be given = 4
No. of questions to be answered = 2
Total marks = $15 \times 2 = 30$

Paper IB:

- Short Questions of 5 marks each: No. of questions to be given = 8
No. of questions to be answered = 4
Total marks = $5 \times 4 = 20$
- Broad Questions of 15 marks each: No. of questions to be given = 4
No. of questions to be answered = 2
Total marks = $15 \times 2 = 30$

Paper IIA:

Group A (25 marks)

- Short Questions of 5 marks each: No. of questions to be given = 4
No. of questions to be answered = 2
Total marks = $5 \times 2 = 10$
- Broad Questions of 15 marks each: No. of questions to be given = 2
No. of questions to be answered = 1
Total marks = $15 \times 1 = 15$

Group B (25 marks)

- Short Questions of 5 marks each: No. of questions to be given = 4
No. of questions to be answered = 2
Total marks = $5 \times 2 = 10$
- Broad Questions of 15 marks each: No. of questions to be given = 2
No. of questions to be answered = 1
Total marks = $15 \times 1 = 15$

Part II

Paper IIIA:

Group A (25 marks)

- Short Questions of 5 marks each: No. of questions to be given = 4
No. of questions to be answered = 2
Total marks = $5 \times 2 = 10$
- Broad Questions of 15 marks each: No. of questions to be given = 2
No. of questions to be answered = 1
Total marks = $15 \times 1 = 15$

Group B (25 marks)

- Short Questions of 5 marks each: No. of questions to be given = 4
No. of questions to be answered = 2
Total marks = $5 \times 2 = 10$
- Broad Questions of 15 marks each: No. of questions to be given = 2
No. of questions to be answered = 1
Total marks = $15 \times 1 = 15$

Paper IIIB:

Group A (25 marks)

- Short Questions of 5 marks each: No. of questions to be given = 4
No. of questions to be answered = 2
Total marks = $5 \times 2 = 10$
- Broad Questions of 15 marks each: No. of questions to be given = 2
No. of questions to be answered = 1
Total marks = $15 \times 1 = 15$

Group B (25 marks)

- Short Questions of 5 marks each: No. of questions to be given = 4
No. of questions to be answered = 2
Total marks = $5 \times 2 = 10$
- Broad Questions of 15 marks each: No. of questions to be given = 2
No. of questions to be answered = 1
Total marks = $15 \times 1 = 15$

Paper IVA:

Group A (25 marks)

- Short Questions of 5 marks each: No. of questions to be given = 4
No. of questions to be answered = 2
Total marks = $5 \times 2 = 10$
- Broad Questions of 15 marks each: No. of questions to be given = 2
No. of questions to be answered = 1
Total marks = $15 \times 1 = 15$

Group B (25 marks)

- Short Questions of 5 marks each: No. of questions to be given = 4
No. of questions to be answered = 2
Total marks = $5 \times 2 = 10$
- Broad Questions of 15 marks each: No. of questions to be given = 2
No. of questions to be answered = 1
Total marks = $15 \times 1 = 15$

Part III

Paper VA:

Group A (25 marks)

- Short Questions of 5 marks each: No. of questions to be given = 4
No. of questions to be answered = 2
Total marks = $5 \times 2 = 10$
- Broad Questions of 15 marks each: No. of questions to be given = 2
No. of questions to be answered = 1
Total marks = $15 \times 1 = 15$

Group B (25 marks)

- Short Questions of 5 marks each: No. of questions to be given = 4
No. of questions to be answered = 2
Total marks = $5 \times 2 = 10$
- Broad Questions of 15 marks each: No. of questions to be given = 2
No. of questions to be answered = 1
Total marks = $15 \times 1 = 15$

Paper VB:

- Short Questions of 5 marks each: No. of questions to be given = 8
No. of questions to be answered = 4
Total marks = $5 \times 4 = 20$
- Broad Questions of 15 marks each: No. of questions to be given = 4
No. of questions to be answered = 2
Total marks = $15 \times 2 = 30$

Paper VIA:

- Short Questions of 5 marks each: No. of questions to be given = 8
No. of questions to be answered = 4
Total marks = $5 \times 4 = 20$
- Broad Questions of 15 marks each: No. of questions to be given = 4
No. of questions to be answered = 2
Total marks = $15 \times 2 = 30$

Paper VIB:

Group A (25 marks)

- Short Questions of 5 marks each: No. of questions to be given = 4
No. of questions to be answered = 2
Total marks = $5 \times 2 = 10$
- Broad Questions of 15 marks each: No. of questions to be given = 2
No. of questions to be answered = 1
Total marks = $15 \times 1 = 15$

Group B (25 marks)

- Short Questions of 5 marks each: No. of questions to be given = 4
No. of questions to be answered = 2
Total marks = $5 \times 2 = 10$
- Broad Questions of 15 marks each: No. of questions to be given = 2
No. of questions to be answered = 1
Total marks = $15 \times 1 = 15$

Note:

1. There will be no choices among questions in the Practical Papers. The candidates will be required to answer all the questions.
2. The practical examination of Paper IIB in Part 1, Paper IVB in Part 2 and Papers VIIA and VIIB in Part 3 will be held simultaneously in all the centers on the basis of single question paper in respective papers. Papers VIIIA and VIIB in Part 3 may be held in groups on different dates. However, the final modality will be decided in the UG Board of Studies meeting.
3. The division of marks for each subsection of all the questions in the Theoretical papers is to be given alongside. No such division need to be given for the questions in the Practical papers.

Question Pattern for B.Sc. General Examinations in Statistics (1+1+1) - 2010

Theoretical

Part I

Paper IA:

- Short Questions of 2 marks each: No. of questions to be given = 8
No. of questions to be answered = 4
Total marks = $2 \times 4 = 8$
- Broad Questions of 14 marks each: No. of questions to be given = 6
No. of questions to be answered = 3
Total marks = $14 \times 3 = 42$

Paper IB:

- Short Questions of 2 marks each: No. of questions to be given = 8
No. of questions to be answered = 4
Total marks = $2 \times 4 = 8$
- Broad Questions of 14 marks each: No. of questions to be given = 6
No. of questions to be answered = 3
Total marks = $14 \times 3 = 42$

Part II

Paper IIB:

- Short Questions of 2 marks each: No. of questions to be given = 8
No. of questions to be answered = 4
Total marks = $2 \times 4 = 8$
- Broad Questions of 14 marks each: No. of questions to be given = 6
No. of questions to be answered = 3
Total marks = $14 \times 3 = 42$

Paper IIIA:

- Short Questions of 2 marks each: No. of questions to be given = 8
No. of questions to be answered = 4
Total marks = $2 \times 4 = 8$
- Broad Questions of 14 marks each: No. of questions to be given = 6
No. of questions to be answered = 3
Total marks = $14 \times 3 = 42$

Part III

Paper IVA:

- Short Questions of 2 marks each: No. of questions to be given = 8
No. of questions to be answered = 4
Total marks = $2 \times 4 = 8$
- Broad Questions of 14 marks each: No. of questions to be given = 6
No. of questions to be answered = 3
Total marks = $14 \times 3 = 42$

Note:

1. There will be no choices among questions in the Practical Papers. The candidates will be required to answer all the questions.
2. The division of marks for each subsection of all the questions in the Theoretical papers is to be given alongside. No such division need to be given for the questions in the Practical papers.

UNIVERSITY OF CALCUTTA

SYLLABI

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**THREE-YEAR B.A HONOURS & GENERAL
COURSES OF STUDIES**



SOCIOLOGY

2010

**Sociology
Honours Course**

Total Marks: 800

**Part-I
(Total Marks – 200)**

Paper I	: Introductory Sociology	100 Marks
Paper II	: Western Sociological Thought	100 Marks

**Part-II
(Total Marks—200)**

Paper III	: Sociological Theory	100 Marks
Paper IV	: Research Methods and Social Statistics	100 Marks

**Part-III
(Total Marks—400)**

Paper V	: Social & Sociological Thought in India	100 Marks
Paper VI	: Social Institutions	100 Marks
Paper VII	: Indian Social Structure and Process	100 Marks
Paper VIII	: Contemporary Indian Social Problems and Field Work- based Dissertation	(50 + 50)= 100 Marks

Part-I

Paper I : Introductory Sociology Group—A :

100 Marks

Module I :

- (a) Sociological perspective; Sociology as a science; Sociology and Common Sense; Sociology and other social sciences (only to understand Sociology's distinctiveness); Practical significance of Sociology : Sociology and Social Work.
- (b) Social interaction; Communication—verbal non-verbal; Interpretation and action; Understanding others: attributing meaning and interpretation; Social relationship: Primary and Secondary.

Module II :

- (a) Culture –meaning and characteristics; Types of culture – popular, elitist, folk, and consumer cultures; Pluralism and Multiculturalism.
- (b) Types of society; Pre-modern societies: hunters and gatherers, pastoral and agrarian, non-industrial and traditional; Modern societies : Industrial, Advanced/Post industrial, Postmodern and Developing societies.

Group – B :

Module I :

- (a) Socialization : meaning and agencies; Theories of child development; Resocialization.
- (b) Social control: meaning, agencies and mechanisms; Conformity and Deviance.

Module II :

- (a) Social stratification : meaning and forms – Caste, Class, Status, Power, Gender and Ethnicity; Social Mobility, Social Closure and Social Exclusion.
- (b) Social Change : definition, factors and theories of social change.

Paper II : Western Sociological Thought Group – A :

100 Marks

Module I :

- (a) Origin and development of Sociology as a distinct discipline; Role of European Enlightenment; Contributions of Montesquieu and St. Simon.

- (b) Auguste Comte : Positivism; Law of Three Stages; Social Statics and Social Dynamics.

Module II :

- (a) Herbert Spencer : Organicism; Theory of Evolution.
- (b) Emile Durkheim : Rules of Sociological Method; Division of Labour; Suicide.

Group – B :

Module III :

- (a) Karl Marx : Dialectics; Materialist interpretation of history; Capitalism: origin and dynamics; Alienation; Class, Class Struggle and Revolution.
- (b) Max Weber : Concept of social action; Methodology; Protestant Ethic and Capitalism; Types of authority.

Module IV:

- (a) George Simmel: Formal Sociology; Concepts of Sociation and Group Formation; Objective Culture; Place of Money.
- (b) Vilfredo Pareto: Logical and Non-logical actions; Residues and Derivations; Circulation of Elites.

Part II

Paper III : Sociological Theory

100 Marks

Group A :

Module I :

- (a) Nature and task of sociological theory.
- (b) Functional theory : General arguments; Contributions of Parsons and Merton; Critical overview.

Module II:

- (a) Conflict theory : General arguments; Contributions of Dahrendorf and Coser; Critical overview.
- (b) Exchange theory: General arguments; Contributions of Homans and Blau; Critical overview.

Group B :

Module III:

- (a) Symbolic Interactionism: General arguments; Contributions of Mead and Blumer.
- (b) Critical Sociology: General arguments; Frankfurt School : Contributions of Adorno and Marcuse.

Module IV :

- (a) Feminist Sociology : General arguments; Stages of development of feminism; Varieties of feminist sociology.
- (b) Post-modern sociology : General arguments; Basic features

Paper IV : Research Methods and Social Statistics

100 Marks

Group A :

Module I :

- (a) Theory and Research : Concepts; Variables; Propositions and Hypotheses : formulation and verification; Links between theory and research; Conceptualization and Operationalization; Qualitative and Quantitative research.
- (b) Research Design: Stages of research; Types, uses and abuses of social research; Major steps of research design; Methodology versus Method; Unit of analysis.

Module II :

- (a) Research method :
 - (1) Survey research: General components; Types, Tools and Techniques (Questionnaire and Interview)
 - (2) Field research : General components; Observation; Design; Strategies; Secondary analysis; Participatory rural-urban appraisal.
- (b) Sampling : Types of sampling; Probability and Non-probability sampling— uses and types.

Group B :

Module III :

- (a) Statistics : Definition, Terminology and Typology; Place of statistics in social research.
- (b) Levels of measurement; Nominal, Ordinal, Interval and Ratio; Continuous and Discrete variables; Ratio, Proportion and Percentages.

Module IV

- (a) Frequency distribution; Grouping of data; Cumulative frequency and percentage distribution.
- (b) Graphic techniques: Bar diagram; Pie chart, Frequency polygon; Histogram; Ogive; Levels of measurement and graphic presentations.

- (c) Measures Central Tendency : Arithmetic Mean , Median and Mode—their comparison and skewness.
- (d) Measures of Dispersion : Range; Interquartile Range; Mean Deviation; Variance and Standard Deviation.

Part III

Paper V : Social & Sociological Thought in India

100 Marks

Group A :

Module I :

- (a) Development of Sociology in India—an overview.
- (b) Contribution of Benoy Kumar Sarkar: Positivism; Personality; Progress; Interpretation of Indian tradition.
- (c) Contribution of G.S.Ghurye : Approach to Sociology; Caste and Tribe; Dynamics of culture and society; Religion.

Module II :

- (a) Contribution of D.P. Mukerji : Personality; Methodology; Interpretation of tradition and social change in India; Middle class in India.
- (b) Contribution of N.K. Bose : Approach to the study of society; Structure of Hindu society; Concept of tribal absorption; Study on Calcutta.

Group B :

Module III :

- (a) Rabindranath Tagore: Man, Society and Personality; Nationalism—West and India; Education; Village community, Cooperative and Rural Development.
- (b) M. K. Gandhi: Critique of Western industrialism; Alternative model of development : village reconstruction; Hind Swaraj and village republic; Concept of education (Nai Talim).

Module IV:

- (a) B. R. Ambedkar : Hinduism and Buddhism; Critique of the Varna/caste-based society of India; Dalits and anti-untouchability agenda; Caste, class and democracy.
- (b)
- (c) Swami Vivekananda : Society and progress; State and class rule; Exploitation and Equality; Democracy, Socialism and Revolution.

Paper VI : Social Institutions

100 Marks

Group A :

Module I :

- (a) Social aggregates : Community, Groups, Institutions and Organizations.
- (b) Family, Marriage and Kinship: Key concepts; Different forms of family and marriage; Changes in family pattern worldwide; Alternatives to family; Divorce and Separation; Importance of Kinship.

Module II :

- (a) Religion : Defining religion; Varieties of religion; Theories of religion.
- (b) Education : The development of literacy and schooling; Gender and the education system; Education and ethnicity; Theories of schooling; Education and cultural reproduction; Education and inequality

Group B :

Module III :

- (a) Economy : Importance of work; Organisation of work; Fordism and Post-Fordism; Work and technology;; Future of work; Market and society.
- (b) Polity : Modern State; Concepts of Power and Authority; Forms of social distribution of power : Marxist, Elitist, Pluralist and Neo-Pluralist.

Module IV :

- (a) Mass media : Types of media; Power of the media; Role of media in modern society; Media and popular culture.
- (b) Health and Medicine : What is meant by health, illness and disease? The social basis of health, illness and medicine; Globalisation of health, illness and medicine.

Paper VII : Indian Social Structure and Process

100 Marks

Group A :

Module I :

- (a) Nature of Indian society: Diversity and Unity : sources and bases; Village society : continuity and change>
- (b) Family : continuity and change; Forms and functions of family; Emergent forms of family; Kinship patterns in India and its importance

Module II :

- (a) Caste : Persistence and change; *Varna and Jati*; *Jajmani* system; Pollution and Purity; Dominant Caste; Sanskritization.
- (b) Class : Importance of class as a dimension of stratification in India; Class structure in India : capitalist class, working class, middle class and peasantry.
- (c) Tribes in transition; Problems of tribal development.

Group B :

Module III :

- (a) Nature of the Indian State : Liberal view and Marxist view.

- (b) Gender inequality in India : caste. Class and gender.

Module IV :

- (a) Social change in India : Westernization, Modernization and Globalization.
- (b) Social movements in India : Post-independence Peasant, Working Class, Dalit, Women's and Environment movements.

Paper VIII : Contemporary Indian Social Problems and Dissertation 100 Marks

Group A : Contemporary Indian Social Problems (Full Marks: 50)

Module I :

- (a) Conceptualising social problem : Approaches to the study of social problem.
- (b) Population : Trends and Policies in India; Migration : causes and consequences.
- (c) Poverty : conceptualizing poverty; Poverty in India: nature and extent; Poverty amelioration programmes
- (d)

Module II :

- (a) Problems of mass illiteracy and school drop-out; Mass literacy programme in India.
- (b) Problems of youth: addiction, alienation and identity crisis; Abuses against children, women and elderly
- (c) Communalism; Secularism; Terrorism; Ethnic problems.

**Group B : Practical : Field Work and Dissertation (Full Marks : 50)
(Dissertation : 40 marks and Viva-voce : 10 marks)**

Dissertation may be written by using any method as prescribed in the syllabus. Size of the dissertation should be around 5000 words. Dissertation paper will be examined jointly by one Internal and one External Examiner to be appointed by the University. Marks will be awarded jointly by the Internal and External Examiners on the basis of the written Dissertation and Viva-voce.

Sociology General

Total Marks : 400

Part I (Total Marks—100)

Paper I : Introductory Sociology .100- Marks

Part II (Total Marks—200)

Paper II: Sociological Thought .100- Marks

Paper III : Society in India .100- Marks

Part III (Total Marks—100)

Paper IV : Social Problems in India .100- Marks

Part I

Paper I : Introductory Sociology

100 Marks

Group A :

Module I :

- (a) Nature and scope of Sociology; Sociology as a science; Place of Sociology among other social sciences.
- (b) Some basic concepts : society, community, association, institution, organization, culture and civilization, folkways and mores, custom, norm and value, conformity and deviance, role and status.

Module II :

- (a) Culture and Personality; Socialization : meaning, agencies and importance in society.
- (b) Social interaction : cooperation, competition, conflict, accommodation and assimilation.

Group B :

Module III:

- (a) Social groups : Definition; Types : Primary and Secondary, Formal and Informal, In-group and Out-group, Reference group.
- (b) Social stratification : meaning and characteristics; Forms : Estate, Class, Status, Power, Caste; Social Mobility : horizontal and vertical.
- (c) Institution: Definition and interrelationship among institutions.

Module IV :

- (a) Family : structure and functions; Nuclear and Joint/ Extended family; The modern family in India; Marriage and Kinship in India.
- (b) Social control : meaning and significance; Agencies: Religion, Education, Law and Mass Media.
- (c) Social change, Social evolution and Social progress : meaning and nature; Factors of social change : demographic, technological and cultural; Concept of Cultural Lag; Theories of social change : Marxist and Weberian.

Part-II

Paper II : Sociological Thought

100 Marks

Group A :

Module I:

- (a) Transition from social-philosophical thought to sociological thought; Emergence of sociology as a new discipline.
- (b) Auguste Comte : Positivism; Law of Three Stages.

Module II:

- (a) Herbert Spencer : Organic analogy; Theory of social evolution.
- (b) Emile Durkheim : Division of Labour; Suicide; Religion.

Group B :

Module III:

- (a) Karl Marx : Dialectics; Historical Materialism; Class and Class Struggle.
- (b) Max Weber : Protestant Ethic and the Spirit of Capitalism; Typology of Authority with special reference to Bureaucracy.

Module IV :

- (a) Development of sociological thought in India –A brief account.
- (b) Approaches to the study of Indian society : Indological, Historical, and Dialectical.

Paper III : Society in India

100 Marks

Group A :

Module I :

- (a) Society in pre-British India : Landownership pattern; Self-sufficient village economy; and the Jajmani system.
- (b) Impact of British rule on Indian society: commercialization of agriculture, growth of rural poverty and indebtedness, rise of new social classes.

Module II :

- (a) Modern India : symbol of unity and diversity; Problems of national integration.
- (b) Changing scenario of Marriage and Family : Impact of post-independence social legislations.
- (c) Changing status of women.

Group B :

Module III:

- (a) Caste system; social mobility in the caste system : role of Sanskritization; Caste dynamics; caste and class.
- (b) Critical assessment of land reforms in India with special reference to West Bengal.

Module IV :

- (a) Rural development in India : Role of Panchayati Raj system with special reference to West Bengal.
- (b) Pattern of urbanization in India : characteristic features and social effect.

Part III

Paper IV : Social Problems in India

100 Marks

Group A :

Module I :

- (a) Concepts of social disorganization and social problem.
- (b) Population problem; Poverty in rural and urban areas

Module II :

- (a) Child labour; Problems of the youth; Old age problem.
- (b) Violence against women; Women and inequality in education and work place.

Group B :

Module III :

- (a) Mass illiteracy; Juvenile delinquency; Drug addiction.
- (b) Crime in men and women.

Module IV:

- (a) Communalism; Ethnicity; Problems of national integration.
- (b) Environmental problems; Terrorism; Problems of cyber crime.

**REFERENCES
(Honours Course)**

Paper I :

1. Ken Browne : An Introduction to Sociology (Polity 3rd ed.)
2. Bilton and others : Introductory Sociology (Macmillan)
3. Anthony Giddens : Sociology
4. Anthony Giddens : Sociology : A brief but critical introduction
5. Anthony Giddens : Human Societies
6. G. Rocher : A General Introduction to Sociology
7. P. Worsely : New Introducing Sociology
8. N.J. Smelser : Sociology
9. T. Bottomore : Sociology—A Guide to Problems and Literature
10. N. Jayram : Introductory Sociology (Macmillan)
11. Alex Inkeles : What Is Sociology?
12. Gordon Marshal : Dictionary of Sociology (OUP)
13. A. Beteille : Sociology—Essays on Approach and Method (OUP)

14. Dipankar Gupta : Social Stratification (OUP)
15. Gilles Ferreol & Jean-Pierre Noreck: An Introduction to Sociology (PHI Learning)

Paper II :

1. Lewis A. Coser : Masters of Sociological Thought
2. Alan Swingewood : A Short History of Sociological Thought
3. George Ritzer : Classical Sociological Theory
4. Raymond Aron : Main Currents in Sociological Thought (2 vols.)
5. Randall Collins : Three Sociological Traditions
6. Irving Zeitlin : Ideology and the Development of Sociological Theory
7. Anthony Giddens : Capitalism and Modern Social Theory

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|---------------------------|--------------------------------------|
| 8. David McLellan | : Thought of Karl Marx |
| 9. Tom Bottomore | : Dictionary of Marxist Thought |
| 10. Tom Bottomore (ed) | : Karl Marx |
| 11. Slaughter | : Marx and Marxism |
| 12. Tom Bottomore | : Theories of Modern Capitalism |
| 13. Hobsbawm | : Pre-capitalist Economic Formation |
| 14. Sobhanlal Datta Gupta | : Marxiya Rashtrachinta (In Bengali) |
| 15. Andre Beteille | : Marxism and Class Analysis |

Paper III :

- | | |
|-------------------------------|---|
| 1. G. Ritzer | : Sociological Theory |
| 2. Wallace and Wolf | : Contemporary Sociological Theory |
| 3. Turner | : The Structure of Sociological Theory |
| 4. Francis Abraham | : Modern Sociological Theory |
| 5. Francis Abraham | : Contemporary Sociology |
| 6. Coser | : Masters of Sociological Thought |
| 7. Bert N. Adams & R.A. Sydie | : Sociological Theory |
| 8. Sobhanlal Datta Gupta | : Marxism and Post-modernism |
| 9. Amal Chattopadhyay | : Adhunikata, Uttar Adhunikata O Ekti
Bikalper Anusandhan (In Bengali) |
| 10. Ramanuj Ganguly | : Tatwa O Chintadarshe Samakalin Samajtwa
(In Bengali) (PHI) |

Paper IV :

- | | |
|-----------------------|---|
| 1. Baker | : Doing Social Research |
| 2. Baily | : Methods of Social Research (Chs. 1,3) |
| 3. Babbie | : The Practice of Social Research (Ch.2) |
| 4. Somekh | : Research Methods in the Social Sciences(Sage) |
| 5. Singh | : Quantitative Social Research Methods (Sage) |
| 6. N. Jayram | : Sociology : Methods and Theory (Macmillan) |
| 7. Plummer | : Documents of Life (Chs. 1,4) |
| 8. Elifson and others | : Fundamentals of Social Statistics (Chs. 1-8) |
| 9. Blalock | : Social Statistics |
| 10. Goon and Aich | : Statistics for the Social Science |

Paper V :

- | | |
|-------------------------|--|
| 1. Srinivas and Panini | : 'Development of Sociology and Social
Anthropology in India' in <i>Sociological
Bulletin</i> , 1977, No.2. |
| 2. Mohini Malik (ed) | : Sociological Inquiry (Article by Yogendra Singh) |
| 3. D. N. Dhanagare | : Themes and Perspectives in Indian Sociology |
| 4. Ramkrishna Mukherjee | : Sociology of Indian Sociology |

5. Yogendra Singh : Indian Sociology : Social Conditioning and Emerging Concerns
6. Bela Datta Gupta : Sociology in India
7. Benoy Kumar Sarkar : Villages and Towns as Social Life (Chapters on Personality and Progress)
8. Swapan Kumar Bhattacharya : Indian Sociology—the Role of Benoy Kumar Sarkar
9. Bholanath Bandyopadhyay : The Political Ideas of Benoy Kumar Sarkar
: ‘Sociological Thinking of Benoy Kumar Sarkar’
In *Socialist Perspective*, Vol.6, No.4
10. Roma Chatterji : ‘The Nationalist Sociology of Benoy Kumar Sarkar’ in Patricia Uberoi et.al.(eds):
Anthropology in the East: Founders of Indian Sociology and Anthropology.
11. Amal K. Mukhopadhyay(ed) : The Bengali Intellectual Tradition
12. Haridas Mukherjee : Benoy Kumar Sarkar—A Study
13. Swapan K. Pramanick : Sociology of G. S. Ghurye
14. D. P. Mukerji : Personality and the Social Diversities
: Basic Concepts in Sociology
: Modern Indian Culture
15. Surajit Sinha : Nirmal Kumar Bose (NBT)
16. Nirmal Kumar Bose : Culture & Society in India
: Structure of Hindu Society
: Nabin O Prachin (In Bengali)/Paribrajoker diary
17. R. N. Tagore : Nationalism
: Sabhyatar Sankat; Swadeshi Samaj; Samabayniti;
Upekshita Palli; Bharatbarshe Samabayar
Bishistata in *Rabindra Rachanabali*
18. Radharaman Chakrabarty : ‘Tagore, Politics and Beyond’ in Pantham and Deutsch (eds) *Political Thought in Modern India*
19. M. K. Gandhi : Hind Swaraj
20. Jayantanuj Bandyopadhyay : Social and Political Thought of Gandhi
21. Nirmal Kumar Bose : Studies in Gandhism
22. Buddhadeva Bhattacharyya : Evolution of the Poilitical Philosophy of Gandhi
23. M. S. Gore : The Social Context of an Ideology: Ambedkar’s Political and Social Thought (Sage)
24. Gail Omvedt : Dalits and the Democratic Revolution :
Dr. Ambedkar and the Dalit Movement in Colonial India (Sage)
25. B. R. Ambedkar : Annihilation of the Caste
26. Dhananjay Keer : Ambedkar : Life and Mission
27. W. N. Kuber : Dr. Ambedkar—A Critical Study
28. Swami Vivekananda : Selections from his writings (Advaita Ashram)
29. Santilal Mukherjee : The Philosophy of Man-Making : A Study in Social and Political Ideas of Swami Vivekananda
30. Tapas Basu (ed) : Marxbadider Chokhe Vivekananda (In Bengali)

- (Pustak Bipani, 1993), Articles by Amalendu Dey,
Buddhadeva Bhattacharyya and Gopal Halder
31. T. N. Madan : Pathways
 32. Satyabrata Chakrabarty(ed) : Bharater Rashtrabhabna (In Bengali)
 33. Subir Bhattacharya(ed) : Dhurjati Prasad Rachana Sangraha, vol.2(articles
By S.K.Bhattacharya,Gayatri Bhattacharya &
Surendra Munshi)

Paper VI :

1. Ken Browne : An Introduction to Sociology (Polity, 3rd ed)
2. Anthony Giddens : Sociology (4th ed)
: Human Societies
3. Bilton and others : Introductory Sociology (Macmillan)
4. G. Rocher : A General Introduction to Sociology
5. P. Worsely : New Introducing Sociology
6. Smelser : Sociology
7. S.K.Pramanik & R.Ganguly(eds) : Globalization in India (PHI Learning)

Paper VII :

1. Veena Das : Handbook of Indian Sociology
: Oxford Companion to Sociology and
Anthropology
2. Mandelbaum : Society in India
3. Neera Chandhoke et.al,(eds) : Contemporary Society in India
4. Yogendra Singh : Modernization of Indian Tradition
5. Amartya Sen : Argumentative India (Chs. 10,11)
6. A. Beteille : Caste, Class and Power: Changing Patterns
7. Vandana Madan : The Village in India (OUP)
8. Patricia Uberoi : Family, Kinship and Marriage in India
9. Flavia Agnes : Law and Gender Inequality
10. Priyam and others : Human Rights, Gender and the Environment
11. Samir Dasgupta(ed) : Globalization (Sage)
: Globalization and After (Sage)
: The Indian Family in Transition (Sage)
12. M. N. Srinivas : Social Change in Modern India
: Collected Essays (OUP)
13. Kuppaswamy : Social Change in India
14. K. L. Sharma : Social Stratification and Mobility
(Chs. 3,4,6,11)
: Social Inequality in India (Chs. 6-8)
15. Nadeem Hashain : Tribal India Today (Chs. 4-8)
16. Thaper : Tribe, Caste and Religion in India
(Articles by Aran and Beteille)

17. T. N. Madan : Religion in India
18. Hemendorf : Tribes in India
19. T. K. Oomen : State and Society in India (Chs.5,6)
: Protest and Change (Chs.6,9)
: Social Movements in India
20. A. R. Desai : Agrarian Struggles in India (Introduction)
: State in India and Other Essays
21. A. M. Shah : Social Movements in India (Chs.2,4,6,7,9)
22. Ramchandra Guha : Social Ecology (OUP)
23. Raka Ray et.al.(eds) : Social Movements in India (OUP)
24. C. J. Fuller : Everyday State and Society of Contemporary
India
25. B. S. Baviskar : Understanding Indian Society
26. Achin Vanaik : Understanding Contemporary India
26. M. Saavala : Middle Class Moralities
27. Ghanshyam Shah : Caste and Democratic Politics in India
28. Debjani Ganguly : Caste and Dalit Lifeworlds
29. Krishna Kumar : Education and Social Change in South Asia
30. Krishnadas Chattopadhyay and Aniruddha Chowdhury(ed) : Bharater Samajik Andolan (In Bengali)
(Levant Books, Kolkata)
31. R.Ganguly & S.A.H.Moinuddin : Samakalin Bharatiya Samaj (IN Bengali) (PHI)

Paper VIII :

1. Rajendra Sharma : Demography and Population Problems
2. O. S. Srivastava : Demography and Population Studies
3. Asis Bose : Demographic Diversity in India
4. Gulati : Fertility in India
5. K. Mahdevan : Fertility Policies of Asian Countries(Ch.7)
6. Dutt and Sundharam : Indian Economy
7. Atul Kohli : The State and Poverty in India—the Politics
Of Reform
8. Amartya Sen : Poverty and Famines
9. Ghanshyam Shah : Poverty Alleviation Programmes in India(Sage)
10. Waxman : The Stigma of Poverty—A Critique of Poverty
Theories and Policies
11. Ken Browne : An Introduction to Sociology(For concept of poverty)
12. V.B.Athrea & S.R.Chunkath : Literacy and Environment (Sage)
13. J.P.Nayek : Alternatives in Development Education—Some
Perspectives on Non-formal Education (ICSSR)
14. Ram Ahuja : Social Problems in India (Rawat)
15. Asha Bajpai : Child Rights in India (OUP)
16. M.L.Sharma & T.M.Dak(ED) : Aging in India : Challenges for the Society
17. M.N.Srinivas : Some Reflections on Dowry
18. G.Forbes : Women in India

19. Weiner : The Child and the State in India (Chs.2,8)
 20. Neera Burra : Born to Work (Chs.1,2,10,11)
 21. Thapan : Transnational Migration and the Politics of Identity (Sage)
 22. R. Chatterjee (ed) : Religion, Politics and Communalism
 23. R. Bhargava : Secularism and its Critics
 24. James G. Keller : The Politics of Nationalism and Ethnicity
 25. Thomas H. Enikson : Ethnicity and Nationalism –Anthropological Perspectives
 26. Ajit Danda : Ethnicity in India
 27. T. K. Oomen : State and Society in India—Studies in Nation Building (Sage)
 28. Radharaman Chakrabarty : Santrasbad (In Bengali) (Council for Political Studies)

General Course

Paper I :

1. MacIver & Page : Society –An Introductory Analysis
 2. Peter Worsely : Introducing Sociology
 3. Haralambos and Heald : Sociology—Themes and Perspectives
 4. Patricia Uberoi : Family and Kinship in India
 5. T. B. Bottomore : Sociology
 6. John Gabbay, Chris Middleton : The Students' Companion to Sociology
 And Ballard (1997)
 7. Parimal Chandra Kar : Sociology; Samajtatwa (In Bengali)
 8. R.Ganguly & S.A.H. Moinuddin : Samakalin Samajtatwa (In Bengali) (PHI)

Paper II :

1. H.E. Barnes : Introduction to History of Sociology
 2. Lewis A. Coser : Masters of Sociological Thought
 3. Abraham and Morgan : Sociological Thought
 4. A. Swingewood : A Short History of Sociological Thought
 5. Igor Kon : A History of Classical Sociology
 6. Bela Dutta Gupta : Sociology in India
 7. Ramkrishna Mukherjee : Sociology of Indian Sociology
 8. D.N.Dhanagare : Themes and Perspectives in Indian Sociology
 9. Srinivas and Panini : 'Development of Sociology and Social Anthropology In India' in *Sociological Bulletin*, No.2, 1977.
 10. Mohini Malik (ed) : Sociological Inquiry (Article by Yogendra Singh)
 11. Santanu Ghosh : Samajtatwik Chintadhara
 12. Maurice Cornforth : Dwandamulok Bastubad(tr. Into Bengali by Bholanath Bandyopadhyay)

Paper III :

1. A.R. Desai : Social Background of Indian Nationalism
: Rural Sociology in India
2. Ram Ahuja : Indian Social System
: Social Problem in India
3. K.M.Kapadia : Marriage and Family in India
4. Giriraj Gupta : Main Currents of Indian Sociology Series,
Vol.6 on Urban India
5. B. Kuppaswami : Social Change in India
6. Prabhat Dutta and Swapan Pramanick : Panchayat and People—the West Bengal
Experience
7. M.N. Srinivas : Social Change in Modern India
8. K.L. Sharma : Indian Society
9. P.C. Deb : Rural Sociology—An Introduction
10. S.C. Dube : Indian Society
11. Bholanath Bandyopadhyay : Swadhinata Sangramer Bhrantachetana- Jatpater
Rajniti in Narahari Kabiraj (ed) : *Asamapta Biplab
Apurna Akankha* (K.P.Bagchi)
12. Aniruddha Chowdhury : Bharater Samaj Prasange (In Bengali) (Chatterjee
Publishers)
13. R.Ganguly & S.A.H. Moinuddin : Samakalin Bharatiya Samaj (In Bengli) (PHI)

Paper IV :

1. Bela Dutta Gupta : Contemporary Social Problems in India
2. G.R. Madan : Indian Social Problems, 2 Volumes
3. Ram Ahuja : Social Problems in India
4. B. Kuppaswami : Social Change in India
5. Aniruddha Chowdhury, Krishnadas Chattopadhyay & Santanu Ghosh : Bharater Samajik Samasya (In Bengali)
(Chatterjee Publishers)

SOCIOLOGY – HONOURS AND GENERAL

Scheme of Paper setting and Marks Distribution

Each paper will be divided into two Groups- Group A and Group B with 50 marks each.

In each Group, 4 broad questions will be set of 15 marks each, out of which 2 questions will be set from Module I or III as case may be and 2 questions from Module II or IV as the case may be. Students will have to answer 1 question from each Module of a Group, i.e. 2 questions of 15 marks from both Modules.

Question No. 5 in Group A and question No. 10 in Group B will have 4 short questions of 10 marks each out of which 2 questions will have to be answered. Those short questions will be set from both the modules and answers must be limited preferably within 300 words.

For General Courses, however, question No. 5 in Group A and Question No. 10 in Group B will have 15 short questions of 2 marks each out of which 10 questions will have to be answered. These short questions will be set from both the Modules.