Kakatiya University Warangal 506 009
Scheme for under **Choice Based Credit System**
With Effect from the Academic Year 2016-2019
B.Com Programme

FIRST YEAR SEMESTER-I					Max. Marks			
Code	Course Title	Course Type	HPW	Credits	Internal Marks	End Exam Marks	Lab Practical	Total Marks
BC 101	Environmental Studies	AECC-1	2	2	10	40		50
BC102	English	CC-1A	5	5	20	80		100
BC103	Second Language	CC-2A	5	5	20	80		100
BC 104	Financial Accounting - I	DSC- 1A	5	5	20	80		100
BC 105	Business Economics	DSC- 2A	5	5	20	80		100
BC 106	Business Organization	DSC -3A	4	4	20	80		100
BC107	Information Technology	DSC – 4A	3T+2P	4	20	60	20	100
SEMESTER-II								
BC 201	Gender Sensitisation	AECC-2	2	2	10	40		50
BC 202	English	CC-1B	5	5	20	80		100
BC 203	Second Language	CC-2B	5	5	20	80		100
BC 204	Financial Accounting – II	DSC -1B	5	5	20	80		100
BC 205	Managerial Economics	DSC- 2B	5	5	20	80		100
BC 206	Principle of Management	DSC- 3B	4	4	20	80		100
BC 207	Foreign Trade	DSC – 4B	4	4	20	80		100
SECOND YEAR SEMESTER-III								
BC301	Communication Skills	SEC-1	2	2	10	40		50
BC 302	English	CC-1C	5	5	20	80		100
BC303	Second Language	CC-2C	5	5	20	80		100
BC 304	Advanced Accounting	DSC- 1C	5	5	20	80		100
BC 305	Business Statistics – I	DSC- 2C	5	5	20	80		100
BC 306	Income Tax – I	DSC -3C	4	4	20	80		100
BC 307	Entrepreneurial Development & Business Ethics	DSC -4C	4	4	20	80		100
BC 307 (CA)only	Programming with C (CA)	DSC -4C	4	4	20	60	20	100
SEMESTER-IV								
BC 401	Soft Skills	SEC-2	2	2	10	40		50
BC 402	English	CC-1D	5	5	20	80		100
BC403	Second Language	CC-2D	5	5	20	80		100
BC 404	Corporate Accounting	DSC- 1D	5	5	20	80		100
BC 405	Business Statistics – II	DSC- 2D	5	5	20	80		100
BC 406	Income Tax – II	DSC – 3D	4	4	20	80		100
BC 407	Auditing	DSC – 4D	4	4	20	80		100

FINAL YEAR SEMESTER - V					Max. Marks			
Code	Course Title	Course Type	HPW	Credits	Internal Marks	End Exam Marks	Lab Practical	Total Marks
BC 501	Consumerism	SEC-3	2	2	10	40		50
BC 502	Organisational Behaviour	GE-1	2	2	20	80		100
BC 503	Cost Accounting	DSC-1E	5	5	20	80		100
BC 504	Business Law	DSC- 2E	5	5	20	80		100
BC 505	Banking Theory & Practice	DSC- 3E	4	4	20	80		100
BC 506	Computerized Accounting	DSC -4E	4	4	20	80		100
BC 507	Financial Management (A) General	DSE – 1A	4	4	20	80		100
	Financial Management (B) Finance	DSE – 1A	4	4	20	80		100
	Financial Statement Analysis (C) Accounting	DSE – 1A	4	4	20	80		100
	E-Commerce (CA)	DSE – 1A	4	4	20	60	20	100
	Direct Tax-1 (Taxation)	DSE – 1A	4	4	20	80		100
	Income Tax (TP&P)	DSE – 1A	4	4	20	80		100
	Business Environment (CSS)	DSE – 1A	4	4	20	80		100
	Marketing Management (ASM)	DSE – 1A	4	4	20	80		100
	Principles and Practices of Insurance (Insurance)	DSE – 1A	4	4	20	80		100
BC 508	Principles of Marketing (A) General	DSE – 2A	4	4	20	80		100
	Financial Services (B) Finance	DSE – 2A	4	4	20	80		100
	Indian Accounting Standards (C) Accounting	DSE – 2A	4	4	20	80		100
	Objective Oriented Programming with C++ (CA)	DSE – 2A	4	4	20	60	20	100
	Indirect Taxes (Taxation)	DSE – 2A	4	4	20	80		100
	Income Tax Procedures and Practices - 1(TP&P)	DSE – 2A	4	4	20	80		100
	Corporate Law & Practices - 1(CSS)	DSE – 2A	4	4	20	80		100
	Advertising - 1 (ASM)	DSE – 2A	4	4	20	80		100
	Legal and managerial aspects of Insurance (Insurance)	DSE – 2A	4	4	20	80		100
		DSE – 2A	4	4	20	80		100

FINAL YEAR SEMESTER - VI								
BC 601	Preparation of Tax Returns	SEC-4	2	2	10	40		50
BC 602	Advertising	GE-2	2	2	20	80		100
BC 603	Managerial Accounting	DSC-1F	5	5	20	80		100
BC 604	Company Law	DSC -2F	5	5	20	80		100
BC 605	Financial Institutions & Markets	DSC- 3F	5	5	20	80		100
BC 606	Commerce Lab	DSC- 4F	4	4	20	80		100
BC 607	Human Resource Management (A) General	DSE – 1B	4	4	20	80		100
	Investment Management (B) Finance	DSE – 1B	4	4	20	80		100
	Advanced Managerial Accounting (C) Accounting	DSE – 1B	4	4	20	80		100
	Web Technologies (CA)	DSE – 1B	4	4	20	60	20	100
	Direct Tax-2 (Taxation)	DSE – 1B	4	4	20	80		100
	Income Tax Procedures & Practices - 2(TP&P)	DSE – 1B	4	4	20	80		100
	Secretarial Practice (CSS)	DSE – 1B	4	4	20	80		100
	Sales Promotion and Sales Management (ASM)	DSE – 1B	4	4	20	80		100
	Fire and Marine Insurance (Insurance)	DSE – 1B	4	4	20	80		100
BC 608	Tax Planning and Management (A) General	DSE – 2B	4	4	20	80		100
	International Finance (B) Finance	DSE – 2B	4	4	20	80		100
	Advanced Corporate Accounting (C) Accounting	DSE – 2B	4	4	20	80		100
	Relational Data Base Management (CA)	DSE – 2B	4	4	20	60	20	100
	Tax Planning and Management (Taxation)	DSE – 2B	4	4	20	80		100
	Other Taxes (TP&P)	DSE – 2B	4	4	20	80		100
	Corporate Law & Practices – 2 (CSS)	DSE – 2B	4	4	20	80		100
	Advertising - 2 (ASM)	DSE – 2B	4	4	20	80		100
	Property and Liability Insurance (Insurance)	DSE – 2B	4	4	20	80		100

Department of Commerce & Business Management, Kakatiya University, Warangal - 506009

B.Com Common Core Syllabi under CBCS (wef 2016-17)

STRUCTURE OF B.Com- DEGREE COURSE under CBCS for ALL STREAMS

{B.Com, B.Com (Computer Applications), B.Com (Taxation), B.Com (Tax Procedures & Practices), B.Com (Corporate Secretary ship), B.Com (Advertising and Sales Management) and B.Com (Insurance)}

w.e.f. ACADEMIC YEAR 2016-17

FIRST YEAR :SEMESTER-I

Code	Title of the Paper	Course Type	HPW	Credits	Exam Duration	Max. Marks
BC101-Common to all	Communication	AECC-1	2	2		
BC102- Common to all	English	CC-1A	5	5		
BC103- Common to all	Second Language	CC-2A	5	5		
BC104-Common to all	Financial Accounting - 1	DSC-1A	5L+1T=6	6		
BC105- Common to all	Business Economics	DSC-2A	6	6		
BC106- Common to all	Business Organization	DSC-3A	4	4		
BC107- Common to all	Information Technology	DSC-4A	4	4		
	Total			32		

FIRST YEAR :SEMESTER-II

Code	Title of the Paper	Course Type	HPW	Credits	Exam Duration	Max. Marks
BC201-Common to all	Environmental Science	AECC-2	2	2		
BC202- Common to all	English	CC-1B	5	5		
BC203- Common to all	Second Language	CC-2B	5	5		
BC204-Common to all	Financial Accounting - II	DSC-1B	5L+1T=6	6		
BC205- Common to all	Managerial Economics	DSC-2B	5L+1T=6	6		
BC206- Common to all	Principles of Management	DSC-3B	4	4		
BC207- Common to all	Foreign Trade	DSC-4B	4	4		
	Total			32		

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{B.Com, B.Com (Computer Applications), B.Com (Taxation), B.Com (Tax Procedures & Practices), B.Com (Corporate Secretary ship), B.Com (Advertising and Sales Management) and B.Com (Insurance)}

B.Com- I Yr First Semester

BC 104 - FINANCIAL ACCOUNTING – I
(Common to all Streams of B Com)

PPW: 5L+1T =6 Hrs   Credits: 6

UNIT-I: ACCOUNTING PROCESS:
Financial Accounting: Introduction – Definition – Evolution – Functions-Advantages and Limitations –Users of Accounting Information- Branches of Accounting – Accounting Principles: Concepts and Conventions- Accounting Standards– Meaning – Importance – List of Accounting Standards issued by ASB –- Accounting System- Types of Accounts – Accounting Cycle- Journal-Ledger and Trial Balance. (Including problems)

UNIT-II: SUBSIDIARY BOOKS:
Meaning –Types - Purchases Book - Purchases Returns Book - Sales Book - - Sales Returns Book - Bills Receivable Book - Bills Payable Book – Cash Book - Single Column, Two Column, Three Column and Petty Cash Book - Journal Proper.(Including problems)

UNIT-III: BANK RECONCILIATION STATEMENT:
Meaning – Need - Reasons for differences between cash book and pass book balances –Favourable and over draft balances – Ascertainment of correct cash book balance (Amended Cash Book) - Preparation of Bank Reconciliation Statement. (Including problems)

UNIT-IV: RECTIFICATION OF ERRORS AND DEPRECIATION:
Capital and Revenue Expenditure – Capital and Revenue Receipts: Meaning and Differences - Differed Revenue Expenditure. Errors and their Rectification: Types of Errors - Suspense Account – Effect of Errors on Profit. (Including problems)

Depreciation (AS-6): Meaning – Causes – Difference between Depreciation, Amortization and Depletion - Objectives of providing for depreciation – Factors affecting depreciation – Accounting Treatment – Methods of depreciation: Straight Line Method - Diminishing Balance Method (Including problems)

UNIT-V: FINAL ACCOUNTS:
Final Accounts of Sole Trader: Meaning -Uses -Preparation of Manufacturing, Trading and Profit & Loss Account and Balance Sheet – Adjustments – Closing Entries.(Including problems)

SUGGESTED READINGS:
1. Accountancy-I: Haneef and Mukherjee, Tata McGraw Hill Company.
2. Principles & Practice of Accounting: R.L.Gupta&V.K.Gupta, Sultan Chand.
3. Accountancy-I: S.P. Jain & K.L Narang, Kalyani Publishers.
4. Accountancy–I: Tulasian, Tata McGraw Hill Co.
5. Introduction to Accountancy: T.S.Grewal, S.Chand and Co.
6. Advanced Accountancy-I: S.N.Maheshwari& V.L.Maheswari, Vikas.
7. Fundamentals of Financial Accounting: Deepak Sehgil, Tax Mann Publication.
8. Financial Accounting: Jawahar Lal, Himalaya Publishing House.

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B.Com Syllabus under Choice Based Credit System (wef 2016-17)
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B.Com- I Yr First Semester

BC 105 - BUSINESS ECONOMICS
(Common to all Streams of B Com)

PPW: – 6 Hrs   Credits: 6

UNIT-I: INTRODUCTION:
Business Economics: Meaning - Nature – Characteristics - Importance and Role - Micro & Macro Economics - Scope - Objectives - Law of Diminishing marginal utility - Law of Equi-marginal utility.

UNIT- II: DEMAND ANALYSIS:
Meaning – Function - Factors influencing Demand -Types of Demand -Demand Curve - Law of Demand –Exceptions to the law of demand-Elasticity of Demand: Concept - Types of elasticity of demand-price, income and cross Elasticity of Demand –measurement of elasticity—arc and point methods—Importance of various Elasticity of Demand

UNIT-III: SUPPLY ANALYSIS:
Law of Supply - Factors influencing Supply - Market Equilibrium- Consumer Surplus - Theory of Consumer behavior - Utility and indifference curve analysis.

UNIT–IV: PRODUCTION ANALYSIS:
Concept of Production –production function-Total Production - Marginal Production - Average Production –returns to a factor- Law of Variable Proportions - Law of Returns to Scale - Isocost – Isoquants - Economies and Dis-economies of Scale.

UNIT-V: COST AND REVENUEANALYSIS:
Theory of Cost - Concepts of Cost - Short run and Long run cost curves - Traditional and Modern Approaches -Revenue Curves–relationship between total marginal and average revenues- --Break Even Analysis—Meaning – Assumptions – Uses and Limitations.

SUGGESTED READINGS:

1. Business Economics: V. G. Mankar, Himalaya Publishing House
2. Managerial Economics: Vanith Agrawal, Pearson Education
3. Business Economics: H. L. Ahuja, S. Chand & Co. Ltd.
4. Business Economics : R. K. Lekhi, Kalyani Publishers
5. Business Economics: D. M. Mithani, Himalaya Publishing House
6. Business Economics: P. N. Chopra, Kalyani Publishers
7. Essential of Business Economics: D. N. Dwivedi, Vikas Publishers
8. Managerial Economics: Varshney and Maheswari, Sultan Chand
9. Business Economics: P. K. Mehta, Tax Mann Publication.

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B.Com- I Yr First Semester

BC 106 - BUSINESS ORGANISATION
(Common to all Streams of B Com)

PPW: – 4 Hrs   Credits: 4

UNIT-1: FUNDAMENTAL CONCEPTS:

Concepts of Business, Trade, Industry and Commerce - Classification - Relationship between Trade. Industry and Commerce - Nature of Business - Objectives of Business – Functions of Business- Social Responsibility of a business - Steps to Start an Enterprise

UNIT-II: BUSINESS ORGANIZATION:

Forms of Business Organization - Classification - Factors Influencing the Choice of Suitable Form of Organization - Sole Proprietorship – Meaning, Definition - Characteristics - Advantages and Disadvantages - Suitability of Sole Proprietorship - Partnership -Kinds of Partners - - Partnership Deed –- Meaning – Contents - Registration of Partnership Advantages and Disadvantages of Partnership - Suitability of Partnership - Limited liability partnership – Hindu Undivided Family - Meaning - Characteristics - Advantages and Disadvantages - Co-Operative Organization – Characteristics -Types of Co-Operative Societies - Limitations of Cooperatives.

UNIT-III: FORMATION OF JOINT STOCK COMPANY:

Joint Stock Company - Meaning - Definition - Characteristics - Advantages and Disadvantages - Kinds of Companies -Promotion - Stages of Promotion - Promoter - Characteristics - Kinds - Preparation of Important Documents - Memorandum of Association - Clauses - Articles of Association - Contents – Prospectus - Contents – Red herring Prospectus- Statement in lieu of Prospectus.

UNIT-IV: SOURCES OF FINANCE:

Industrial Finance - Long Term and Short Term Finance - Fixed and Working Capital Finance - Sources of Corporate Finance (A brief introduction to Shares and Debentures, Retained Earnings, Underwriting, Inter Company Investments and Venture Capital, Angel Investors, lease, hire purchase, franchising) .

UNIT V: STOCK EXCHANGE AND MUTUAL FUNDS:

Stock Exchange, Functions — Working of Stock Exchanges, Mutual Funds –Importance, Functions, Types — Role of SEBI in Regulating Stock Exchanges and Mutual Funds in India

SUGGESTED READINGS:

1. Business Organization & Management: Sharma Shashi K. Gupta, Kalyani Publishers
2. Business Organization: Sharma Shashi K. Gupta, Kalyani publishers.
3. Organization & Management: R. D. Agarwal, McGraw Hill.
4. Modern Business Organization: S.A. Sherlekar, V.S. Sherlekar, Himalaya Publishing House
5. Business Organization & Management: C.R. Basu, Tata McGraw Hill
6. Business Organization & Management: R. N. Gupta, S. Chand,
7. Organizational Behaviour Text & Cases: V.S.P. Rao, Himalaya Publishing House
8. Business Organization & Management: Uma Shekaram, Tata McGraw Hill

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B.Com- I Yr First Semester

BC 107 - INFORMATION TECHNOLOGY
(Common to all Streams of B Com)

PPW: = 4 Hrs   Credits: 4

UNIT-I: INTRODUCTION:
Introduction to computers - Generations of computers – An overview of computer system - Types of computers - Input & Output Devices. .
Hardware: Basic components of a computer system - Control unit – ALU - Input/output functions - Memory – RAM – ROM – EPROM - PROM and Other types of memory.

UNIT-II: OPERATING SYSTEM (OS):
Meaning - Definition & Functions - Types of OS - Booting process - DOS – Commands (internal & external) - Wild card characters – Virus & Hackers – Cryptography & cryptology
Windows: Using the Start Menu –Control Panel – Using multiple windows – Customizing the Desktop – Windows accessories (Preferably latest version of windows or Linux Ubuntu).

UNIT-III: WORD PROCESSING:
Application of word processing - Menus & Tool Bars - Word processor – Creating – Entering - Saving & printing the document - Editing & Formatting Text - Mail Merge and Macros (Preferably latest version of MS Word or Libre Office Writer).

UNIT-IV: SPREAD SHEET:
Application of work sheet/spread sheet - Menus & Tool bars - Creating a worksheet - Entering and editing of numbers - Cell referencing - Worksheet to analyze data with graphs & Charts.
Advanced tools: Functions – Formulae – Formatting numbers - Macros – Sorting- Filtering - Validation &Consolidation of Data (Preferably latest version of MS Excel or Libre Office Calc)

UNIT-V: POWER POINT PRESENTATION:
Application of Power Point Presentation – Menus & Tool bars – Creating presentations – Adding - Editing and deleting slides - Templates and manually creating presentation– Slide show – Saving - Opening and closing a Presentation –Types of slides - Slide Views - Formatting – Insertion of Objects and Charts in slides - Custom Animation and Transition (Preferably latest version of MS Power Point presentation - Libre Office Impress).
Internet & Browsing: Services available on internet – WWW – ISP – Browsers.
Multimedia: Application of multimedia – Images – Graphics-Audio and Video – IT security.

SUGGESTED READINGS:
1. Introduction to Computers: Peter Norton, McGraw Hill.
2. Fundamentals of Information Technology: Dr. NVN Chary, Kalyani Publishers.
3. Computer Fundamental: AnithaGoel, Pearson.
4. Information Technology Applications for Business: Dr. S. Sudalaimuthu, Himalaya
5. Introduction to Information Technology: ITL ESL, Pearson.
6. Introduction to Information Technology: V. Rajaraman, PHI.
7. Fundamental of Computers: Balaguruswamy, McGraw Hill.
8. PC Software under Windows: Puneet Kumar, Kalyani Publishers.
9. Information Technology and C language: Rajiv Khanna, New Age International.

B.Com Syllabus under Choice Based Credit System (wef 2016-17)

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B.Com- I Yr Second Semester

BC 204 - FINANCIAL ACCOUNTING-II
(Common to all Streams of B Com)

PPW: 5L+1T =6 Hrs

Credits: 6

UNIT-I: BILLS OF EXCHANGE:

Bills of Exchange - Definition- Distinction between Promissory note and Bills of exchange-Accounting treatment of Trade bills: Books of Drawer and Acceptor- Honour and Dishonour of Bills- Renewal of bills- Retiring of bills under rebate- Accommodation bills.(Including problems)

UNIT-II: CONSIGNMENT ACCOUNTS:

Consignment – Meaning – Features– Proforma invoice - Account sales – Del creder commission-Accounting treatment in the books of the consignor and the consignee - Valuation of consignment stock –Treatment of Normal and abnormal Loss - Invoice of goods at a price higher than the cost price. (Including problems)

UNIT-III: JOINT VENTURE ACCOUNTS:

Joint Venture – Meaning –Features-Difference between Joint Venture and Consignment- Accounting Procedure-Methods of Keeping Records for Joint Venture Accounts-Method of Recording in co-ventures books-Separate Set of Books Method- Joint Bank Account-Memorandum Joint Venture Account (Including problems)

UNIT-IV: ACCOUNTS FROM INCOMPLETE RECORDS:

Single Entry System – Meaning -Features–Difference between Single Entry and Double Entry systems -Defects in Single Entry System - Books and accounts maintained - Ascertainment of Profit - Statement of Affairs and Conversion method (Including problems)

UNIT-V: ACCOUNTING FOR NON-PROFIT ORGANIZATIONS:

Non- Profit Organization – Meaning – Features – Receipts and Payments Account – Income and Expenditure Account – Balance Sheet(Including problems)

SUGGESTED READINGS:

1. Accountancy-I: Haneef and Mukherjee, Tata McGraw Hill Co.
2. Principles and Practice of Accounting: R.L. Gupta & V.K. Gupta,Sultan Chand & Sons.
3. Accountancy–I: Tulasian, Tata McGraw Hill Co.
4. Accountancy–I: S.P. Jain & K.L Narang, Kalyani.
5. Advanced Accountancy-I: S.N.Maheshwari&V.L.Maheswari, Vikas.
6. Advanced Accountancy: M Shrinivas& K Sreelatha Reddy, Himalaya Publishers.
7. Financial Accounting: M.N Arora, Tax Mann Publications.

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B.Com- I Yr Second Semester

BC 205- MANAGERIAL ECONOMICS
(Common to all Streams of B Com)

PPW: 5L+1T =6 Hrs   Credits: 6

UNIT-I: NATURE AND SCOPE OF MANAGERIAL ECONOMICS:
Characteristics of managerial economics – Nature and scope of managerial economics -Importance of managerial economics- Basic economic tools in managerial economics- managerial economist role and responsibility

UNIT-II: DEMAND FORECASTING:
Demand estimations for major consumer durables and non-durable products – Demand forecasting techniques: Statistical and Non-Statistical techniques.

UNIT–III: MARKET ANALYSIS:
Definition of market – Market structure (Perfect competition, Imperfect competition) – Price determination -Firms equilibrium in perfect competition, monopoly, monopolistic, oligopoly and duopoly

UNIT-IV: MACRO-ECONOMICS FOR MANAGERS:
National income – Concepts – Methods - Measurement of national income – GDP and GVA—Business cycles- nature –Phases – Causes—Inflation - Causes and control – Deflation and stagflation.

UNIT-V: FISCAL AND MONETARY POLICY
Fiscal Policy- deficits-budgetary deficit-primary deficit-revenue deficit-fiscal deficit-Objectives of FRBM Act - Monetary Policy- Objectives – Repo Rate- Reverse Repo Rate- CRR- SLR- Finance Commission- role and objectives

SUGGESTED READINGS:
1. Managerial Economics: Craig H Peterson and Jain, Pearson education
2. Managerial Economics: Gupta, Tata McGraw Hill
3. Managerial Economics: Maheshwari and Gupta, Sultan Chand & Sons
4. Managerial Economics: Dr. P.C. Thomas, Kalyani Publishers
5. Managerial Economics: H.L. Ahuja, S. Chand and Company
6. Managerial Economics: Mithani, Himalaya Publications
7. Managerial Economics: R.L. Varshney and K.L. M Maheshwari, Sultan Chand
8. Managerial Economics: P. Venkataiah and Surya Prakash, Vaagdevi Publishers
9. Managerial Economics: P.L. Mehta, Tata McGraw Hill
10. Managerial Economics: R.N. Chopra, Kalyani Publishers
11. Managerial Economics: D.N. Dwivedi, Vikas Publishers
12. Managerial Economics: Thomas, Maurice, Sarkar, Tata McGraw Hill
13. Managerial Economics: YogeshMaheshwari, PHI Learning Pvt. Limited
14. Managerial Economics: P.K. Mehta, Tax Mann Publications.

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B.Com- I Yr Second Semester

BC 206- PRINCIPLES OF MANAGEMENT
(Common to all Streams of B Com)

PPW: –4 Hrs   Credits: 4

UNIT-I: INTRODUCTION
Management - Meaning - Characteristics - Administration Vs Management - Scope of Management - Importance of Management - Functions of Management - Levels of Management - Skills of Management -- Leader Vs. Manager - Scientific Management - Meaning - Definition - Objectives - Criticism – Fayol's 14 Principles of Management .

UNIT-II: PLANNING
Meaning - Definition - Characteristics - Types of Plans - Advantages and Disadvantages – Approaches to Planning - Management by Objectives (MBO) - Steps in MBO - Benefits -Weaknesses

UNIT-III: ORGANIZING:
Organizing-Meaning, Definition – Organization Meaning, Definition - Process of Organizing - Principles of Organization - Types of Organization - Formal and Informal Organizations - Line, Staff Organizations - Line and Staff Conflicts - Functional Organization - - Span of Management - Meaning - Determining Span - Factors influencing the Span of Supervision

UNIT-IV: DELEGATION AND DECENTRALIZATION:
Authority – Meaning - Delegation - Definition - Characteristics: - Elements - Principles, Types of Delegation - Importance of Delegation: - Factors Influencing Degree of Delegation - Barriers - Guidelines for Making Delegation Effective - Centralization - Meaning – Decentralization- Meaning - Difference between Delegation and Decentralization.

UNIT-V: COORDINATION AND CONTROL:
Meaning - Definition - Principles of Coordination – Importance- Process of Coordination-techniques of Effective Coordination - Control - Meaning - Definition – relationship between planning and control- Steps in Control – Types (post, current and pre-control) - Requirements for effective control.

SUGGESTED READINGS:
1. Principles and Practice of Management: R. S. Gupta, B. D. Sharma, W.S. Bhalla,   Kaylani
2. Management: Stephen P. Robbins, Person
3. Principles of Management: T Ramasamy, Himalaya Publication
4. Principles of Management Concept: Rajeshviwanathan, Himalaya Publication
5. Management Theory and Practices: P Subba Rao, Himalaya Publishing House
6. Essential of Management: Harold Kontz, McGraw Education
7. Principles of Management, Chandan JS, Vikas Publishers.
8. Fundamentals of Management, Dr. Pradeep Kumar, S. Chand
9. Principles of Management: Neeru Vasishth, Tax Mann Publications.

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(Corporate Secretary ship), B.Com (Advertising and Sales Management) and B.Com (Insurance)}
B.Com- I Yr Second Semester

BC 207- FOREIGN TRADE

(Common to all Streams of B Com)

PPW: -4 Hrs   Credits: 4

UNIT-I: INTRODUCTION:

Foreign Trade: Meaning and Definition - Types –Documents used-Commercial Invoice – Bills of Lading / Airway Bill – Marine Insurance Policy and Certificate – Bills of Exchange – Consumer Invoice – Customs Invoice – Certificate of Origin – Inspection Certificate – Packing List.

UNIT-II: BALANCE OF TRADE AND BALANCE OF PAYMENTS:

Introduction – Meaning - Components of BOT & BOP - Concept of Disequilibrium – Causes - Remedies for Correcting Balance of Payments in International Trade.

UNIT-III: INDIAN TRADE POLICY:

Importance and its Implementation - Exchange Control – Objectives - Exchange Rate -Adjustments – Devaluation – Revaluation - Depreciation of Currency.

UNIT-IV: FOREIGN TRADE & ECONOMIC DEVELOPMENT:

Growth - Significance of Foreign Trade – Merits - Demerits - Regional Economic Groupings – SAARC - ASEAN – BRICS - Free Trade Area - Common Markets-Economic Union-European Union.

UNIT-V: INTERNATIONAL ECONOMIC INSTITUTIONS:

IMF: Objectives-Functions - World Bank: Objectives – Functions-Subsidiaries of World Bank – IMF Vs. IBRD – UNCTAD: Introduction – Aims- Features – WTO: Introduction – Aims- Features – Agreements.

SUGGESTED READINGS:

1. International Marketing: Rathore& Jain, Himalaya Publishers.
2. International Marketing: Kushpat S. Jain &RimiMitra, Himalaya Publishers
3. International Economics: SSMDesai&NirmalBhalerao, Himalaya Publishers.
4. International Business Environment & Foreign Exchange Economies: Singh & S. Srivastava,
5. Foreign Trade and Foreign Exchange: O.PAgarwal &B.K.Chaudri, Himalaya Publishers
6. International Financial Markets & Foreign Exchange: Shashi.K.Gupta&PraneetRangi, Kalyani
7. International Economics: Theory & Practice: Paul R. Krugman, Pearson Publishers.

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Department of Commerce & Business Management, Kakatiya University, Warangal - 506009

B.Com Common Core Syllabi under CBCS (wef 2016-17)

STRUCTURE OF B.Com- DEGREE COURSE under CBCS for ALL STREAMS

{B.Com, B.Com (Computer Applications), B.Com (Taxation), B.Com (Tax Procedures & Practices), B.Com (Corporate Secretary ship), B.Com (Advertising and Sales Management) and B.Com (Insurance)}

w.e.f. ACADEMIC YEAR 2016-17

FIRST YEAR :SEMESTER-I

Code	Title of the Paper	Course Type	HPW	Credits	Exam Duration	Max. Marks
BC101-Common to all	Communication	AECC-1	2	2		
BC102- Common to all	English	CC-1A	5	5		
BC103- Common to all	Second Language	CC-2A	5	5		
BC104-Common to all	Financial Accounting - I	DSC-1A	5L+1T=6	6		
BC105- Common to all	Business Economics	DSC-2A	6	6		
BC106- Common to all	Business Organization	DSC-3A	4	4		
BC107- Common to all	Information Technology	DSC-4A	4	4		
	Total			32		

FIRST YEAR :SEMESTER-II

Code	Title of the Paper	Course Type	HPW	Credits	Exam Duration	Max. Marks
BC201-Common to all	Environmental Science	AECC-2	2	2		
BC202- Common to all	English	CC-1B	5	5		
BC203- Common to all	Second Language	CC-2B	5	5		
BC204-Common to all	Financial Accounting - II	DSC-1B	5L+1T=6	6		
BC205- Common to all	Managerial Economics	DSC-2B	5L+1T=6	6		
BC206- Common to all	Principles of Management	DSC-3B	4	4		
BC207- Common to all	Foreign Trade	DSC-4B	4	4		
	Total			32		

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SECOND YEAR :SEMESTER-III

Code	Title of the Paper	Course Type	HPW	Credits	Exam Duration	Max. Marks
BC301-Common to all	A	SEC-1	2	2		
		OR				
BC301-Common to all	B	SEC-1	2	2		
BC302- Common to all	English	CC-1C	5	5		
BC303- Common to all	Second Language	CC-2C	5	5		
BC304-Common to all	Advanced Accounting	DSC-1C	5L+1T=6	6		
BC305- Common to all	Business Statistics-I	DSC-2C	6	6		
BC306- Common to all	Income Tax-I	DSC-3C	4	4		
BC307- Common to all except B.Com (CA)	Entrepreneurial Development & Business Ethics	DSC-4C	4	4		
		OR				
BC307- B.Com(CA)only	Programming with C	DSC-4C	4	4		
	Total			32		

SECOND YEAR :SEMESTER-IV

Code	Title of the Paper	Course Type	HPW	Credits	Exam Duration	Max. Marks
BC401-Common to all	C	SEC-2	2	2		
		OR				
BC401-Common to all	D	SEC-2	2	2		
BC402- Common to all	English	CC-1D	5	5		
BC403- Common to all	Second Language	CC-2D	5	5		
BC404-Common to all	Corporate Accounting	DSC-1D	5L+1T=6	6		
BC405- Common to all	Business Statistics-II	DSC-2D	6	6		
BC406- Common to all	Income Tax-II	DSC-3D	4	4		
BC407- Common to all	Auditing	DSC-4D	4	4		
	Total			32		

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THIRD YEAR :SEMESTER-V

Code	Title of the Paper		Course	HPW	Credits	Exam	Max.
BC501-Common to	E		SEC-3	2	2		
		OR					
BC501-Common to	F		SEC-3	2	2		
BC502- Common to			GE-1	5L+1T=6	6		
BC503- Common to	Cost Accounting		DSC-1E	6	6		
BC504-Common to	Business Law		DSC-2E	5	5		
BC505- Common to	Banking Theory & Practice		DSC-3E	4	4		
BC506- Common to	Computerized Accounting		DSC-4E	5	5		
		Elective-1					
BC507	Elective Group – A General	Financial Management	DSE-1A	4L+1T=5	5		
	Elective Group – B Finance	Financial Management	DSE-1A	4L+1T=5	5		
	Elective Group – C Accounting	Financial Statement Analysis	DSE-1A	4L+1T=5	5		
	B.Com (Computer Applications)	E-Commerce	DSE-1A	4L+1T=5	5		
	B.Com (Taxation)	Direct Tax – 1	DSE-1A	4L+1T=5	5		
	B.Com (Tax Procedures & Practices)	Income Tax	DSE-1A	4L+1T=5	5		
	B.Com (Corporate Secretary ship)	Business Environment	DSE-1A	4L+1T=5	5		
	B.Com (Advertising and Sales Management)	Marketing Management	DSE-1A	4L+1T=5	5		
	B.Com (Insurance)	Principles and Practices of	DSE-1A	4L+1T=5	5		
		Elective-2					
BC508	Elective Group – A General	Principles of Marketing	DSE-2A	4L+1T=5	5		
	Elective Group – B Finance	Financial Services	DSE-2A	4L+1T=5	5		
	Elective Group – C Accounting	Indian Accounting Standards	DSE-2A	4L+1T=5	5		
	B.Com (Computer Applications)	Objective Oriented Programming with C++	DSE-2A	4L+1T=5	5		
	B.Com (Taxation)	Indirect Taxes	DSE-2A	4L+1T=5	5		
	B.Com (Tax Procedures & Practices)	Income Tax Procedures and	DSE-2A	4L+1T=5	5		
	B.Com (Corporate Secretary ship)	Corporate Law & Practice – 1	DSE-2A	4L+1T=5	5		
	B.Com (Advertising and Sales Management)	Advertising -1	DSE-2A	4L+1T=5	5		
	B.Com (Insurance)	Legal and managerial aspects of	DSE-2A	4L+1T=5	5		
	Total						

THIRD YEAR :SEMESTER-VI

Code	Title of the Paper	Course	HPW	Credits	Exam	Max.
BC601–Common to all	G	SEC-4	2	2		
	OR					
BC601–Common to all	H	SEC-4	2	2		
BC602- Common to all		GE-2	5L+1T=6	6		
BC603- Common to all	Managerial Accounting	DSC-1F	5L+1T=6	6		
BC604–Common to all	Company Law	DSC-2F	5	5		
BC605- Common to all	Financial Institutions & Markets	DSC-3F	5	5		
BC606- Common to all	Commerce Lab	DSC-4F	4	4		
	Elective-3					
BC607	Elective Group – A General — Human Resource Management &	DSE-1B	4L+1T=5	5		
	Elective Group – B Finance — Investment Management &	DSE-1B	4L+1T=5	5		
	Elective Group – C Accounting — Advanced Managerial Accounting	DSE-1B	4L+1T=5	5		
	B.Com (Computer Applications) — Web Technologies	DSE-1B	4L+1T=5	5		
	B.Com (Taxation) — Direct Tax – 2	DSE-1B	4L+1T=5	5		
	B.Com (Tax Procedures & Practices) — Income Tax Procedures &	DSE-1B	4L+1T=5	5		
	B.Com (Corporate Secretary ship) — Secretarial Practice	DSE-1B	4L+1T=5	5		
	B.Com (Advertising and Sales Management) — Sales Promotion and Sales	DSE-1B	4L+1T=5	5		
	B.Com (Insurance) — Fire and Marine Insurance	DSE-1B	4L+1T=5	5		
	Elective-4					
BC608	Elective Group – A General — Tax Planning and Management	DSE-2B	4L+1T=5	5		
	Elective Group – B Finance — International Finance	DSE-2B	4L+1T=5	5		
	Elective Group – C Accounting — Advanced Corporate Accounting	DSE-2B	4L+1T=5	5		
	B.Com (Computer Applications) — Relational Data Base Management	DSE-2B	4L+1T=5	5		
	B.Com (Taxation) — Tax Planning and Management	DSE-2B	4L+1T=5	5		
	B.Com (Tax Procedures & Practices) — Other Taxes	DSE-2B	4L+1T=5	5		
	B.Com (Corporate Secretary ship) — Corporate Law and Practice - 2	DSE-2B	4L+1T=5	5		
	B.Com (Advertising and Sales Management) — Advertising – 2	DSE-2B	4L+1T=5	5		
	B.Com (Insurance) — Property and Liability Insurance	DSE-2B	4L+1T=5	5		
	Total					

Notation: L – Lecture; T= Tutorial; P – Practical; R – Report; VV – Viva-Voce Examination.

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Department of Commerce & Business Management, Kakatiya University, Warangal - 506009
B.Com Syllabus under Choice Based Credit System (wef 2016-17)
{B.Com, B.Com (Computer Applications), B.Com (Taxation), B.Com (Tax Procedures & Practices), B.Com (Corporate Secretary ship), B.Com (Advertising and Sales Management) and B.Com (Insurance)}
B.Com- I Yr First Semester

BC 104 - FINANCIAL ACCOUNTING – I
(Common to all Streams of B Com)

PPW: 5L+1T – 6 Hrs   Credits: 6

UNIT-I: ACCOUNTING PROCESS:

Financial Accounting: Introduction – Definition – Evolution – Functions-Advantages and Limitations –Users of Accounting Information- Branches of Accounting – Accounting Principles: Concepts and Conventions- Accounting Standards– Meaning – Importance – List of Accounting Standards issued by ASB — Accounting System- Types of Accounts – Accounting Cycle- Journal- Ledger and Trial Balance. (Including problems)

UNIT-II: SUBSIDIARY BOOKS:

Meaning –Types - Purchases Book - Purchases Returns Book - Sales Book - - Sales Returns Book - Bills Receivable Book - Bills Payable Book – Cash Book - Single Column, Two Column, Three Column and Petty Cash Book - Journal Proper.(Including problems)

UNIT-III: BANK RECONCILIATION STATEMENT:

Meaning – Need - Reasons for differences between cash book and pass book balances –Favourable and over draft balances – Ascertainment of correct cash book balance (Amended Cash Book) - Preparation of Bank Reconciliation Statement. (Including problems)

UNIT-IV: RECTIFICATION OF ERRORS AND DEPRECIATION:

Capital and Revenue Expenditure – Capital and Revenue Receipts: Meaning and Differences - Differed Revenue Expenditure. Errors and their Rectification: Types of Errors - Suspense Account – Effect of Errors on Profit. (Including problems)

Depreciation (AS-6): Meaning – Causes – Difference between Depreciation, Amortization and Depletion - Objectives of providing for depreciation – Factors affecting depreciation – Accounting Treatment – Methods of depreciation: Straight Line Method - Diminishing Balance Method (Including problems)

UNIT-V: FINAL ACCOUNTS:

Final Accounts of Sole Trader: Meaning -Uses -Preparation of Manufacturing, Trading and Profit & Loss Account and Balance Sheet – Adjustments – Closing Entries.(Including problems)

SUGGESTED READINGS:

1. Accountancy-I: Haneef and Mukherjee, Tata McGraw Hill Company.
2. Principles & Practice of Accounting: R.L.Gupta&V.K.Gupta, Sultan Chand.
3. Accountancy-I: S.P. Jain & K.L Narang, Kalyani Publishers.
4. Accountancy–I: Tulasian, Tata McGraw Hill Co.
5. Introduction to Accountancy: T.S.Grewal, S.Chand and Co.
6. Advanced Accountancy-I: S.N.Maheshwari& V.L.Maheswari, Vikas.
7. Fundamentals of Financial Accounting: Deepak Sehgil, Tax Mann Publication.
8. Financial Accounting: Jawahar Lal, Himalaya Publishing House.

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B.Com Syllabus under Choice Based Credit System (wef 2016-17)
{B.Com, B.Com (Computer Applications), B.Com (Taxation), B.Com (Tax Procedures & Practices), B.Com
(Corporate Secretary ship), B.Com (Advertising and Sales Management) and B.Com (Insurance)}

B.Com- I Yr First Semester

BC 105 - BUSINESS ECONOMICS
(Common to all Streams of B Com)

PPW: – 6 Hrs   Credits: 6

UNIT-I: INTRODUCTION:
Business Economics: Meaning - Nature – Characteristics - Importance and Role - Micro & Macro Economics - Scope - Objectives - Law of Diminishing marginal utility - Law of Equi-marginal utility.

UNIT- II: DEMAND ANALYSIS:
Meaning – Function - Factors influencing Demand -Types of Demand -Demand Curve - Law of Demand –Exceptions to the law of demand-Elasticity of Demand: Concept - Types of elasticity of demand-price, income and cross Elasticity of Demand –measurement of elasticity—arc and point methods— Importance of various Elasticity of Demand

UNIT-III: SUPPLY ANALYSIS:
Law of Supply - Factors influencing Supply - Market Equilibrium- Consumer Surplus - Theory of Consumer behavior - Utility and indifference curve analysis.

UNIT–IV: PRODUCTION ANALYSIS:
Concept of Production –production function-Total Production - Marginal Production - Average Production –returns to a factor- Law of Variable Proportions - Law of Returns to Scale - Isocost – Isoquants - Economies and Dis-economies of Scale.

UNIT-V: COST AND REVENUE ANALYSIS:
Theory of Cost - Concepts of Cost - Short run and Long run cost curves - Traditional and Modern Approaches -Revenue Curves–relationship between total marginal and average revenues- --Break Even Analysis—Meaning – Assumptions – Uses and Limitations.

SUGGESTED READINGS:

1. Business Economics: V. G. Mankar, Himalaya Publishing House
2. Managerial Economics: Vanith Agrawal, Pearson Education
3. Business Economics: H. L. Ahuja, S. Chand & Co. Ltd.
4. Business Economics : R. K. Lekhi, Kalyani Publishers
5. Business Economics: D. M. Mithani, Himalaya Publishing House
6. Business Economics: P. N. Chopra, Kalyani Publishers
7. Essential of Business Economics: D. N. Dwivedi, Vikas Publishers
8. Managerial Economics: Varshney and Maheswari, Sultan Chand
9. Business Economics: P. K. Mehta, Tax Mann Publication.

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Department of Commerce & Business Management, Kakatiya University, Warangal - 506009
B.Com Syllabus under Choice Based Credit System (wef 2016-17)
{B.Com, B.Com (Computer Applications), B.Com (Taxation), B.Com (Tax Procedures & Practices), B.Com (Corporate Secretary ship), B.Com (Advertising and Sales Management) and B.Com (Insurance)}
B.Com- I Yr First Semester

BC 107 - INFORMATION TECHNOLOGY
(Common to all Streams of B Com)

PPW: = 4 Hrs   Credits: 4

UNIT-I: INTRODUCTION:

Introduction to computers - Generations of computers – An overview of computer system - Types of computers - Input & Output Devices. .
Hardware: Basic components of a computer system - Control unit – ALU - Input/output functions - Memory – RAM – ROM – EPROM - PROM and Other types of memory.

UNIT-II: OPERATING SYSTEM (OS):

Meaning - Definition & Functions - Types of OS - Booting process - DOS – Commands (internal & external) - Wild card characters – Virus & Hackers – Cryptography & cryptology
Windows: Using the Start Menu –Control Panel – Using multiple windows – Customizing the Desktop – Windows accessories (Preferably latest version of windows or Linux Ubuntu).

UNIT-III: WORD PROCESSING:

Application of word processing - Menus & Tool Bars - Word processor – Creating – Entering - Saving & printing the document - Editing & Formatting Text - Mail Merge and Macros (Preferably latest version of MS Word or Libre Office Writer).

UNIT-IV: SPREAD SHEET:

Application of work sheet/spread sheet - Menus & Tool bars - Creating a worksheet - Entering and editing of numbers - Cell referencing - Worksheet to analyze data with graphs & Charts.
Advanced tools: Functions – Formulae – Formatting numbers - Macros – Sorting- Filtering - Validation &Consolidation of Data (Preferably latest version of MS Excel or Libre Office Calc)

UNIT-V: POWER POINT PRESENTATION:

Application of Power Point Presentation – Menus & Tool bars – Creating presentations – Adding - Editing and deleting slides - Templates and manually creating presentation– Slide show – Saving - Opening and closing a Presentation –Types of slides - Slide Views - Formatting – Insertion of Objects and Charts in slides - Custom Animation and Transition (Preferably latest version of MS Power Point presentation - Libre Office Impress).
Internet & Browsing: Services available on internet – WWW – ISP – Browsers.
Multimedia: Application of multimedia – Images – Graphics-Audio and Video – IT security.

SUGGESTED READINGS:
1. Introduction to Computers: Peter Norton, McGraw Hill.
2. Fundamentals of Information Technology: Dr. NVN Chary, Kalyani Publishers.
3. Computer Fundamental: AnithaGoel, Pearson.
4. Information Technology Applications for Business: Dr. S. Sudalaimuthu, Himalaya
5. Introduction to Information Technology: ITL ESL, Pearson.
6. Introduction to Information Technology: V. Rajaraman, PHI.
7. Fundamental of Computers: Balaguruswamy, McGraw Hill.
8. PC Software under Windows: Puneet Kumar, Kalyani Publishers.
9. Information Technology and C language: Rajiv Khanna, New Age International.

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B.Com- I Yr Second Semester

BC 204 - FINANCIAL ACCOUNTING-II

(Common to all Streams of B Com)

PPW: 5L+1T =6 Hrs   Credits: 6

UNIT-I: BILLS OF EXCHANGE:

Bills of Exchange - Definition- Distinction between Promissory note and Bills of exchange-Accounting treatment of Trade bills: Books of Drawer and Acceptor- Honour and Dishonour of Bills- Renewal of bills- Retiring of bills under rebate- Accommodation bills.(Including problems)

UNIT-II: CONSIGNMENT ACCOUNTS:

Consignment – Meaning – Features– Proforma invoice - Account sales – Del creder commission- Accounting treatment in the books of the consignor and the consignee - Valuation of consignment stock –Treatment of Normal and abnormal Loss - Invoice of goods at a price higher than the cost price. (Including problems)

UNIT-III: JOINT VENTURE ACCOUNTS:

Joint Venture – Meaning –Features-Difference between Joint Venture and Consignment- Accounting Procedure-Methods of Keeping Records for Joint Venture Accounts-Method of Recording in co-ventures books-Separate Set of Books Method- Joint Bank Account-Memorandum Joint Venture Account (Including problems)

UNIT-IV: ACCOUNTS FROM INCOMPLETE RECORDS:

Single Entry System – Meaning -Features–Difference between Single Entry and Double Entry systems -Defects in Single Entry System - Books and accounts maintained - Ascertainment of Profit - Statement of Affairs and Conversion method (Including problems)

UNIT-V: ACCOUNTING FOR NON-PROFIT ORGANIZATIONS:

Non- Profit Organization – Meaning – Features – Receipts and Payments Account – Income and Expenditure Account – Balance Sheet(Including problems)

SUGGESTED READINGS:

1. Accountancy-I: Haneef and Mukherjee, Tata McGraw Hill Co.
2. Principles and Practice of Accounting: R.L. Gupta & V.K. Gupta,Sultan Chand & Sons.
3. Accountancy–I: Tulasian, Tata McGraw Hill Co.
4. Accountancy–I: S.P. Jain & K.L Narang, Kalyani.
5. Advanced Accountancy-I: S.N.Maheshwari&V.L.Maheswari, Vikas.
6. Advanced Accountancy: M Shrinivas& K Sreelatha Reddy, Himalaya Publishers.
7. Financial Accounting: M.N Arora, Tax Mann Publications.

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B.Com Syllabus under Choice Based Credit System (wef 2016-17)

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B.Com- I Yr Second Semester

BC 205- MANAGERIAL ECONOMICS
(Common to all Streams of B Com)

PPW: 5L+1T =6 Hrs   Credits: 6

UNIT-I: NATURE AND SCOPE OF MANAGERIAL ECONOMICS:
Characteristics of managerial economics – Nature and scope of managerial economics -Importance of managerial economics- Basic economic tools in managerial economics- managerial economist role and responsibility

UNIT-II: DEMAND FORECASTING:
Demand estimations for major consumer durables and non-durable products – Demand forecasting techniques: Statistical and Non-Statistical techniques.

UNIT–III: MARKET ANALYSIS:
Definition of market – Market structure (Perfect competition, Imperfect competition) – Price determination -Firms equilibrium in perfect competition, monopoly, monopolistic, oligopoly and duopoly

UNIT-IV: MACRO-ECONOMICS FOR MANAGERS:
National income – Concepts – Methods - Measurement of national income – GDP and GVA— Business cycles- nature –Phases – Causes—Inflation - Causes and control – Deflation and stagflation.

UNIT-V: FISCAL AND MONETARY POLICY
Fiscal Policy- deficits-budgetary deficit-primary deficit-revenue deficit-fiscal deficit-Objectives of FRBM Act - Monetary Policy- Objectives – Repo Rate- Reverse Repo Rate- CRR- SLR- Finance Commission- role and objectives

SUGGESTED READINGS:
1. Managerial Economics: Craig H Peterson and Jain, Pearson education
2. Managerial Economics: Gupta, Tata McGraw Hill
3. Managerial Economics: Maheshwari and Gupta, Sultan Chand & Sons
4. Managerial Economics: Dr. P.C. Thomas, Kalyani Publishers
5. Managerial Economics: H.L. Ahuja, S. Chand and Company
6. Managerial Economics: Mithani, Himalaya Publications
7. Managerial Economics: R.L. Varshney and K.L. M Maheshwari, Sultan Chand
8. Managerial Economics: P. Venkataiah and Surya Prakash, Vaagdevi Publishers
9. Managerial Economics: P.L. Mehta, Tata McGraw Hill
10. Managerial Economics: R.N. Chopra, Kalyani Publishers
11. Managerial Economics: D.N. Dwivedi, Vikas Publishers
12. Managerial Economics: Thomas, Maurice, Sarkar, Tata McGraw Hill
13. Managerial Economics: YogeshMaheshwari, PHI Learning Pvt. Limited
14. Managerial Economics: P.K. Mehta, Tax Mann Publications.

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B.Com Syllabus under Choice Based Credit System (wef 2016-17)

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B.Com- I Yr Second Semester

BC 206- PRINCIPLES OF MANAGEMENT
(Common to all Streams of B Com)

PPW: =4 Hrs   Credits: 4

UNIT-I: INTRODUCTION
Management - Meaning - Characteristics - Administration Vs Management - Scope of Management - Importance of Management - Functions of Management - Levels of Management - Skills of Management -- Leader Vs. Manager - Scientific Management - Meaning - Definition - Objectives - Criticism – Fayol's 14 Principles of Management .

UNIT-II: PLANNING
Meaning - Definition - Characteristics - Types of Plans - Advantages and Disadvantages – Approaches to Planning - Management by Objectives (MBO) - Steps in MBO - Benefits -Weaknesses

UNIT-III: ORGANIZING:
Organizing-Meaning, Definition – Organization Meaning, Definition - Process of Organizing - Principles of Organization - Types of Organization - Formal and Informal Organizations - Line, Staff Organizations - Line and Staff Conflicts - Functional Organization - - Span of Management - Meaning - Determining Span - Factors influencing the Span of Supervision

UNIT-IV: DELEGATION AND DECENTRALIZATION:
Authority – Meaning - Delegation - Definition - Characteristics: - Elements - Principles, Types of Delegation - Importance of Delegation: - Factors Influencing Degree of Delegation - Barriers - Guidelines for Making Delegation Effective - Centralization - Meaning – Decentralization- Meaning - Difference between Delegation and Decentralization.

UNIT-V: COORDINATION AND CONTROL:
Meaning - Definition - Principles of Coordination – Importance- Process of Coordination-techniques of Effective Coordination - Control - Meaning - Definition – relationship between planning and control-Steps in Control – Types (post, current and pre-control) - Requirements for effective control.

SUGGESTED READINGS:
1. Principles and Practice of Management: R. S. Gupta, B. D. Sharma, W.S. Bhalla,   Kaylani
2. Management: Stephen P. Robbins, Person
3. Principles of Management: T Ramasamy, Himalaya Publication
4. Principles of Management Concept: Rajeshviwanathan, Himalaya Publication
5. Management Theory and Practices: P Subba Rao, Himalaya Publishing House
6. Essential of Management: Harold Kontz, McGraw Education
7. Principles of Management, Chandan JS, Vikas Publishers.
8. Fundamentals of Management, Dr. Pradeep Kumar, S. Chand
9. Principles of Management: Neeru Vasishth, Tax Mann Publications.

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B.Com Syllabus under Choice Based Credit System (wef 2016-17)
{B.Com, B.Com (Computer Applications), B.Com (Taxation), BCom (Tax Procedures & Practices), B.Com
(Corporate Secretary ship), B.Com (Advertising and Sales Management) and B.Com (Insurance)}
B.Com- I Yr Second Semester

BC 207- FOREIGN TRADE
(Common to all Streams of B Com)

PPW: -4 Hrs   Credits: 4

UNIT-I: INTRODUCTION:
Foreign Trade: Meaning and Definition - Types –Documents used-Commercial Invoice – Bills of Lading / Airway Bill – Marine Insurance Policy and Certificate – Bills of Exchange – Consumer Invoice – Customs Invoice – Certificate of Origin – Inspection Certificate – Packing List.

UNIT-II: BALANCE OF TRADE AND BALANCE OF PAYMENTS:
Introduction – Meaning - Components of BOT & BOP - Concept of Disequilibrium – Causes - Remedies for Correcting Balance of Payments in International Trade.

UNIT-III: INDIAN TRADE POLICY:
Importance and its Implementation - Exchange Control – Objectives - Exchange Rate -Adjustments – Devaluation – Revaluation - Depreciation of Currency.

UNIT-IV: FOREIGN TRADE & ECONOMIC DEVELOPMENT:
Growth - Significance of Foreign Trade – Merits - Demerits - Regional Economic Groupings – SAARC - ASEAN – BRICS - Free Trade Area - Common Markets-Economic Union-European Union.

UNIT-V: INTERNATIONAL ECONOMIC INSTITUTIONS:
IMF: Objectives-Functions - World Bank: Objectives – Functions-Subsidiaries of World Bank – IMF Vs. IBRD – UNCTAD: Introduction – Aims- Features – WTO: Introduction – Aims- Features – Agreements.

SUGGESTED READINGS:

1. International Marketing: Rathore& Jain, Himalaya Publishers.
2. International Marketing: Kushpat S. Jain &RimiMitra, Himalaya Publishers
3. International Economics: SSMDesai&NirmalBhalerao, Himalaya Publishers.
4. International Business Environment & Foreign Exchange Economies: Singh & S. Srivastava,
5. Foreign Trade and Foreign Exchange: O.PAgarwal &B.K.Chaudri, Himalaya Publishers
6. International Financial Markets & Foreign Exchange: Shashi.K.Gupta&PraneetRangi, Kalyani
7. International Economics: Theory & Practice: Paul R. Krugman, Pearson Publishers.

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Max. Marks: 40UE+10IA

Unit I: Communicative English: Meaning – Significance – Learning English through Listening, Speaking, Reading and Writing (LSRW). Listening skills: Factors influencing – Barriers in listening – Effective listening - Practice of interpersonal listening. Meaning and significance of Oral and Written Communication – Principles of oral communication –Preparing for oral communication – Practice of oral communication with pre-announced topics – Extempore. Tenets of written communication – Practice of written communication with displayed text - Practice of written communication with pre-announced topics and extempore.

Unit II: Business and Corporate Correspondence: Meaning – Significance – Types of Business Letters - Principles of letter writing – Formats – Practice of letter writing in different situations. Corporate correspondence: Types of Meetings -Notice and Agenda – Practice of preparing notice and agenda for different meetings – Writing press releases – advertisements – Circulars – Memos – Enquires – Replies – Writing minutes and resolutions of different meetings. E-mails – Writing e-mails.

Suggested books:

1. Sarma V V S, Muralidhar D and Saritha M, LOTUS: Interactive Communication, Camel Published, 2016.
2. Aruna Koneru, Professional Communication, Tata McGraw Hill, New Delhi, 2008.
3. Sehgal M K and Khetarpal Vandana, Business Communication, Excel Books, New Delhi, 2008.
4. Varinder Kumar and Bodh Raj, Business Communication, Kalyani Publishers, Ludhiyana, 1998.

B.Com II Year – III Semester
Department of Commerce and Business Management, Kakatiya University, Warangal
BC304 : Advanced Accounting

Max. Marks: 80UE+20IA

UNIT-I: PARTNERSHIP ACCOUNTS-I: Meaning – Partnership Deed - Capital Accounts (Fixed and Fluctuating) – Admission of a Partner – Retirement and Death of a Partner (Excluding Joint Life Policy)(Including problems)

UNIT-II: PARTNERSHIP ACCOUNTS–II:
Dissolution of Partnership – Insolvency of a Partner (excluding Insolvency of all partners) – Sale to a Company (Including problems)

UNIT-III: ISSUE OF SHARES, DEBENTURES, UNDERWRITING AND BONUS SHARES: Issue of Shares at par, premium and discount - Prorata allotment – Forfeiture and Re-issue of Shares – Issue of Debentures with Conditions of Redemption – Underwriting:Meaning – Conditions- Bonus Shares: Meaning – SEBI Guidelines for Issue of Bonus Shares – Accounting of Bonus Shares(Including problems)

UNIT-IV: COMPANY FINAL ACCOUNTS AND PROFIT PRIOR TO INCORPORATION: Companies Act 2013: Structure – General Instructions for preparation of Balance Sheet and Statement of Profit and Loss – Part-I: Form of Balance Sheet – Part-II: Statement of Profit and Loss – Preparation of Final Accounts of Companies - Profits Prior to Incorporation- Accounting treatment. (Including problems)

UNIT-V: VALUATION OF GOODWILL AND SHARES: Valuation of Goodwill: Need – Methods: Average Profits, Super Profits and Capitalization Methods -Valuation of Shares: Need – Net Assets, Yield and Fair Value Methods. (Including problems)

Suggested Books:
1. Principles and Practice of Accounting: R.L. Gupta & V.K. Gupta,Sultan Chand & Sons.
2. Advanced Accountancy: Shukla and Grewal, S.Chand& Co.
3. Advanced Accountancy: R.L.Gupta&Radhaswamy, Sultan Chand & Sons.
4. Advanced Accountancy (Vol-II): S.N.Maheshwari&V.L.Maheswari, Vikas Publications
5. Accountancy–III: Tulasian, Tata McGraw Hill Co.
6. Advanced Accountancy: Arulanandam; Himalaya.
7. Accountancy–III: S.P. Jain & K.L Narang, Kalyani Publishers.
8. Guidance Note on the Revised Schedule VI to the Companies Act, 1956, The Institute of Chartered Accounts of India.
9. Advanced Accounting (IPCC): D. G. Sharma, Tax Mann Publications.

Max. Marks: 80UE+20IA

UNIT-I: INTRODUCTION: Origin and Development of Statistics – Definition - Importance and Scope - Limitations of Statistics - Distrust of Statistics. Statistical Investigation: Planning of statistical investigation - Census and Sampling methods - Collection of primary and secondary data - Statistical errors and approximation - classification and Tabulation of data - Frequency distribution.

UNIT – II: DIAGRAMMATIC AND GRAPHIC PRESENTATION: Diagrammatic presentation: One Dimensional and Two Dimensional Diagrams – Pictograms – Cartograms Graphic presentation: Technique of Construction of Graphs - Graphs of Frequency Distribution - Graphs of Time Series or Histograms.

UNIT-III: MEASURES OF CENTRAL TENDENCY: Introduction –Significance -Arithmetic Mean- Geometric Mean - Harmonic Mean - Mode – Median - Quartiles and Percentiles - Simple and Weighted Averages - Uses and Limitations of different Averages.

UNIT-IV: MEASURES OF DISPERSION, SKEWNESS AND KURTOSIS: Measures of Dispersion: Significance - Characteristics - Absolute and Relative Measures - Range - Quartile Deviation - Mean Deviation- Standard Deviation - Coefficient of Variation. Measures of Skewness - Karl Pearson's Coefficient of Skewness - Bowley's Coefficient of Skewness - Kelly's Measure of Skewness – Kurtosis: Mesokurtosis, Platy kurtosis and Leptokurtosis.

UNIT-V: CORRELATION: Meaning -Types - Correlation and Causation – Methods: Scatter Diagram - Karl Person's Coefficient of Correlation - Probable Error and Interpretation of Coefficient of Correlation - Rank Correlation - Concurrent Deviation Method.

SUGGESTED BOOKS:
1. Statistics for Management: Levin & Rubin, Pearson
2. Statistical Methods : S. P Gupta, Sultan Chand
3. Fundamentals of Statistics: Gupta S.C, Himalaya
4. Statistics: E. Narayanan Nadar, PHI Learning
5. Business Statistics: Dr. J. K. Thukral, Taxmann Publications
6. Business Statistics: K. Alagar, Tata McGraw Hill
7. Business Statistics: J. K. Sharma, Vikas Publishers
8. Business Statistics: S. L Aggarwal, S. L. Bhardwaj, Kalyani Publications
9. Statistics-Problems and Solutions: Kapoor V.K, S. Chand
10. Statistics - Theory, Methods and Applications: Sancheti D.C. & Kapoor V.K
11. Business Statistics: S. K. Chakravarty, New Age International Publishers

Max. Marks: 80UE+20IA

UNIT–I: INTRODUCTION: Direct and Indirect Taxes – Canons of Taxation - Features and History of Income Tax in India – Definitions and Basic Concepts of Income Tax: Assessee – Deemed Assessee – Assessee-in- default – Assessment Year – Previous Year - Income Tax general rule and Exemptions to the Rule– Person – Income – Gross Total Income – Total Income — Incomes Exempt from Tax. Residential Status and Scope of Total Income: Meaning of Residential Status – Conditions applicable to an Individual Assessee – Incidence of Tax – Types of Incomes – Problems on computation of Total Income of an Individual based on Residential Status.

UNIT-II: AGRICULTURAL INCOME: Introduction – Definition – Tests to determine Agricultural Income – Partly Agricultural and partly Non-Agricultural Income – Integration: conditions – provisions – computation of Tax on Integration process. Heads of income: Gross Total Income – Taxable Income – Income Tax Rates.

UNIT–III: INCOME FROM SALARIES: Definition of 'Salary' – Characteristics of Salary – Computation of Salary Income: Salary u/s 17(1) – Annual Accretion – Allowances – Perquisites – Profits in lieu of Salary – Deductions u/s. 16 – Problems on computation of Income from Salary.

UNIT–IV: INCOME FROM HOUSE PROPERTY: Definition of 'House Property' – Exempted House Property incomes– Annual Value – Determination of Annual Value for Let-out House and Self-occupied House – Deductions u/s.24 – Problems on computation of Income from House Property.

UNIT–V: PROFITS AND GAINS OF BUSINESS OR PROFESSION: Definition of 'Business and Profession' – Procedure for computation of Income from Business – Rules – Revenue and Capital nature of Incomes and Expenses – Allowable Expenses u/s. 30 to 37 – Expenses expressly disallowed – Deemed Profits – Valuation of Stock – Miscellaneous provisions u/s 44.

Depreciation: Meaning – Conditions for charge of depreciation – Assets used for Business – Block of Assets – Rates of Depreciation – Miscellaneous Provisions about depreciation – Computation of Depreciation –problems on computation of Income from Business.
Income from Profession: Rules– procedure – problems on computation of Income from Profession.

SUGGESTED BOOKS:

1. Income Tax Law and Practice: V.P. Gaur & D.B Narang, Kalyani Publishers.

2. Direct Taxes Law & Practice: Dr. Vinod K. Singhania& Dr. Kapil Singhania, Taxmann

3. Income Tax: B.B. Lal, Pearson Education.

4. Taxation: R.G. Saha, Himalaya Publishing House Pvt. Ltd.

Department of Commerce and Business Management, Kakatiya University, Warangal
BC307: Entrepreneurial Development & Business Ethics (except B.Com (CA))

Max. Marks: 80UE+20IA

UNIT–I: ENTREPRENEUR: Evolution-Concept - Functions - Characteristics – Importance of Entrepreneur– Types of Entrepreneurs - Entrepreneurship-Entrepreneurial Competencies-Women Entrepreneurs in India – Opportunities & Challenges-Entrepreneurship today.

UNIT–II: ENTREPRENEURIAL DEVELOPMENT: Entrepreneurial opportunities in India-Environment Scanning– Idea Generation – Transformation of Ideas into Opportunities - Idea & opportunity assessment – Market assessment – Trend spotting – Creativity &Innovation – Innovative process – Selection of the right opportunity.

UNIT–III: PROJECT AND MSMEs: Project: Concept -Classification - Identification - Formulation – Design - Planning and Appraisal - Social Cost-Benefit Analysis – Budget and Planning Financial Analysis &Project Financing - MSME – Government Policy and Support.

UNIT–IV: ENTTREPRENEURALDEVELOPMENT POLICIES AND PROGRAMMES: Entrepreneurship Development Programmes – Policies of the Government – Institutions for Entrepreneurship Development Training (EDIs) in India: CED, MDI, EDII, IED, NIESBUD, EMC, STEPs, XISS, SIDO, SISIs - Role of Consultancy Organizations: IDCs, TCOs – Role of Financial Institutions and Banks.

UNIT–V: BUSINESS ETHICS: Concept of Business Ethics-Moral Values-Utilitarianism and Universalism -Business Standards and Values - Concept of Corporate Social Responsibility.

SUGGESTED BOOKS:

1. Entrepreneurship Development: A.Shankaraiah et al, KalyaniPublishers.
2. Fundamentals of Entrepreneurship: K.K. Patra, Himalaya Publishing House.
3. Entrepreneurship Development:Dr.S.S.Khanka, S.Chand.
4. Entrepreneurship Development: V.Gangadhar et al, Kalyani Publishers.
5. Entrepreneurship Development & Small Business Enterprises: PoornimaCharantimath, Pearson.
6. Entrepreneurship: Robert D. Hisrich, McGraw Hill
7. Entrepreneurship: Arya Kumar, Pearson
8. The Dynamics of Entrepreneurial Development & Management: Vasanth Desai, Himalaya
9. Business Ethics: Chandra Kumar Roy, Prabhat Kumar Roy, Vikas Publishing House Ltd.

B.Com II Year – III Semester
Department of Commerce and Business Management, Kakatiya University, Warangal
BC307: Programming with C (for B.Com (CA) only)

Max. Marks: 80UE+20IA

UNIT-I: INTRODUCTION TO C LANGUAGE, DATA TYPES AND I/O OPERATIONS:
Introduction: Types of Languages – History of C language – Basic Structure – Creating – Compiling
- Linking and Executing the C Program - Pre-processors in "C". Types and I/O operations:
Keywords & Identifiers – Constants – Variables - Scope and Life of a Variable - Data types -
Storage classes - Reading a character or values - Writing a character or value - Formatted Input and
Output operations.

UNIT-II: OPERATORS, EXPRESSIONS AND DECISION MAKING: Operators: Introduction
– Arithmetic – Relational – Logical – Assignment - Conditional - Special operators – Expressions:
Arithmetic – Evaluation - Type conversions. Decision Making & Looping: Introduction - If
statements - If-else statements - Switch statements - Conditional statements - While statements - Do
statements - For Statements.

UNIT-III: ARRAYS AND STRINGS: Arrays: Introduction - Defining an array - Initializing an
array - One dimensional array – Two dimensional array - Dynamic array. Strings: Introduction -
Declaring and initializing string variables - Reading and Writing strings - String handling functions.

UNIT-IV: BUILT-IN FUNCTIONS AND USER-DEFINED FUNCTIONS: Built–in functions:
Mathematical functions - String functions - Character functions - Date functions. User defined
functions: Introduction - Need for user defined functions - Elements of functions - Return values and
their types - Function declaration - Function calls - Recursive functions.

UNIT-V: STRUCTURES AND POINTERS: Structures: Introduction - Declaring structures
variables - Accessing structure members - Functions and Structures - Array of structures -
Enumerated Data types - Introduction to Unions. Pointers: Fundamentals - Understanding pointers -
Address - Declaration of Pointers. LAB: PROGRAMS USING C.

SUGGESTED BOOKS:
1. Programming in ANSCI C: Balaguruswamy, McGraw Hill.
2. Programming in C: Ashok Kamthane, Pearson.
3. C How to Program: P.J. Deitel& H.M. Deitel, Pearson & PHI.
4. Programming in C: K.S. Kahlon, Kalyani Publishers.
5. Fundamental of C: Dr. N. Guruprasad, Himalaya Publishing House.
6. C: Learning and Building Business and System Applications: Susant Rout, PHI.
7. Mastering C: K.R. Venugopal, McGraw Hill.
8. Programming in C: J.B. Dixit, Firewal Media.

Max. Marks: 40UE+10IA

Unit I: Personality Development: Personality Development: Meaning- Characteristics – Determinants – Ingredients of pleasing personality. Learning: Meaning – Characteristics – Significance – Principles of learning. Self esteem: Meaning – Characteristics – Significance - Building self esteem.

Unit II: Self Management: Attitude Development: Meaning – Characteristics – Significance – Building Positive Attitude. Achievement Motivation: Meaning – Characteristics – Significance – Goal setting for achievement – Strategies of achievement motivation. Emotional Intelligence: Meaning – Characteristics – Significance – Strategies of developing emotional intelligence: Fear, Anger and Anxiety.

Suggested Readings:

1. Sarma V S Veluri & Muralidhar D., Personal Empowerment: LOTUS Series - Interactive Learning, CAMEL Limited, 2017.
2. Sarma V S Veluri and Others., Jeevan nipunyalu: LOTUS Series, (Telugu), CAMEL Limited, 2017.
3. K Alex, Soft Skills, S. Chand & Company, 2013
4. Narula, S S., Personality Development & Communication Skills, Taxman Publications Pvt. Ltd. New Delhi.
5. Arora, A., Communication Skills and Personality Development, Kalyani Publishers, Ludhiana, 2015.

B.Com II Year – IV Semester
Department of Commerce and Business Management, Kakatiya University, Warangal
BC404 : Corporate Accounting

Max. Marks: 80UE+20IA

UNIT-I: COMPANY LIQUIDATION: Meaning – Modes - Contributory Preferential Payments – Statements of Affairs - Liquidator's Remuneration - Preparation of Liquidator's Final Statement of Account (Including problems)

UNIT-II: AMALGAMATION (AS-14): Amalgamation: In the nature of merger and purchase – Calculation of Purchase Consideration – Accounting Treatment in the books of transferor and transferee companies. (Including problems)

UNIT-III: INTERNAL RECONSTRUCTION AND ACQUISITION OF BUSINESS: Internal Reconstruction: Accounting treatment – Preparation of final statement after reconstruction- Acquisition of business when new set of books are opened- Debtors and Creditors taken over on behalf of vendors- When same set of books are continued(Including problems)

UNIT-IV: ACCOUNTS OF BANKING COMPANIES: Books and Registers maintained – Slip system of posting – Rebate on Bills Discounted – Non- Performing Assets – Legal Provisions relating to final accounts - Final Accounts. (Including problems)

UNIT-V: ACCOUNTS OF INSURANCECOMPANIES AND INSURANCE CLAIMS: Introduction – Formats-Revenue Account–Net Revenue Account - Balance Sheet - Valuation Balance Sheet – Net Surplus – General Insurance - Preparation of final accounts with special reference to Fire and Marine Insurance - Insurance claims- Meaning – Loss of Stock and Assets – Average Clause – Treatment of Abnormal Loss - Loss of Profit. (Including problems)

SUGGESTED BOOKS:
1.Advanced Accountancy (Vol-II): S.N.Maheshwari&V.L.Maheswari, Vikas.
2. Accountancy–III: Tulasian, Tata McGraw Hill Co.
3. Advanced Accountancy: Arulanandam; Himalaya
4. Accountancy–III: S.P. Jain & K.L Narang, Kalyani Publishers
5. Advanced Accounting (Vol-II): Chandra Bose, PHI
6. Advanced Accountancy: Shukla and Grewal, S.Chand& Co
7. Advanced Accountancy: R.L.Gupta&Radhaswamy, Sultan Chand & Sons
8. Corporate Accounting: Sakshi Vasudeva, Himalaya.

Max. Marks: 80UE+20IA

UNIT-I: REGRESSION: Introduction - Linear and Non Linear Regression – Correlation Vs. Regression - Lines of Regression - Derivation of Line of Regression of Y on X - Line of Regression of X on Y - Using Regression Lines for Prediction.

UNIT-II: INDEX NUMBERS: Introduction - Uses - Types - Problems in the Construction of Index Numbers - Methods of Constructing Index Numbers - Simple and Weighted Index Number (Laspeyre - Paasche, Marshall – Edgeworth) - Tests of Consistency of Index Number: Unit Test - Time Reversal Test - Factor Reversal Test - Circular Test - Base Shifting - Splicing and Deflating of Index Numbers.

UNIT-III: TIME SERIES: Introduction - Components – Methods-Semi Averages - Moving Averages – Least Square Method -Deseasonalisation of Data – Uses and Limitations of Time Series.

UNIT-IV: PROBABILITY: Probability – Meaning - Experiment – Event - Mutually Exclusive Events - Collectively Exhaustive Events - Independent Events - Simple and Compound Events - Basics of Set Theory – Permutation – Combination - Approaches to Probability: Classical – Empirical – Subjective - Axiomatic - Theorems of Probability: Addition – Multiplication - Baye's Theorem.

UNIT-V: THEORITECAL DISTRIBUTIONS: Binomial Distribution: Importance – Conditions – Constants - Fitting of Binomial Distribution. Poisson Distribution:– Importance – Conditions – Constants - Fitting of Poisson Distribution.Normal Distribution: – Importance - Central Limit Theorem - Characteristics –Fitting a Normal Distribution (Areas Method Only).

SUGGESTED BOOKS:
1. Statistics for Management: Levin & Rubin, Pearson,
2. Fundamentals of Statistics: Gupta S.C, Himalaya
3. Business Statistics: Theory & Application, P. N. Jani, PHI Learning
4. Business Statistics: Dr. J. K. Thukral, Taxmann Publications
5. Business Statistics: K. Alagar, Tata Mc Graw Hill
6. Fundamentals of Statistical: S. P Gupta , Sultan Chand
7. Business Statistics: J. K. Sharma,Vikas Publishers
8. Business Statistics: Vora, Tata Mc Graw Hill
9. Statistics-Problems and Solutions: Kapoor V.K, S. Chand
10. Statistics-Teory, Methods and Applications: SanchetiD.C. & Kapoor V.K
11. Business Statistics: S. K. Chakravarty, New Age International Publishers

Max. Marks: 80UE+20IA

UNIT-I: CAPITAL GAINS:
Introduction - Meaning – Scope of charge – Basis of charge – Short term and Long term Capital Assets – Transfer of Capital Asset – Deemed Transfer – Transfer not regarded as Transfer – Determination of Cost of Acquisition – Procedure for computation of Long-term and Short-term Capital Gains/Losses – Exemptions in respect of certain Capital Gains u/s. 54 – Problems on computation of capital gains.

UNIT–II: INCOME FROM OTHER SOURCES:
General Incomes u/s. 56(1) – Specific Incomes u/s. 56(2) – Dividends u/s. 2(22) – Interest on Securities – Gifts received by an Individual – Casual Income – Family Pension – Rent received on let out of Furniture- Plant and Machinery with/without Building – Deductions u/s. 57 - Problems on computation on Income from Other Sources.

UNIT-III: CLUBBING AND AGGREGATION OF INCOME:
Income of other persons included in the total income of Assessee – Income from Firm and AOP – Clubbing Provisions – Deemed Incomes – Provisions of set-off and Carry forward of losses – computation of Gross Total Income – Deductions from GTI u/s 80C to 80U – Problems on Computation of Taxable Income

UNIT-IV: ASSESSMENT OF INDIVIDUALS:
Computation of Tax Liability – Applicability of Alternate Minimum Tax on Individual u/s 115JC – Problems on Computation of tax liability

UNIT–V: ASSESSMENT PROCEDURE:
Income tax returns – Types of returns – Filing of e-return – Assessment – Types of assessment – Self assessment – Provisional assessment – Regular assessment – Best judgement assessment – Reassessment – Rectification of mistakes – Notice on demand.

SUGGESTED BOOKS:
1.   Income Tax Law and Practice:V.P. Gaur & D.B- Narang, Kalyani Publishers.
2.   Direct Taxes Law & Practice: Dr. Vinod K. Singhania& Dr. Kapil Singhania, Taxmann
3.   Income Tax: B. Lal, Pearson Education.
4.   Income Tax: M.Jeevarathinam& C. Vijay Vishnu Kumar, SCITECH Publications.
5.   Taxation: R.G. Saha, Himalaya Publishing House Pvt. Ltd.
6.   Income Tax: Johar, McGrawHill Education.
7.   Taxation Law and Practice: Balachandran &Thothadri, PHI Learning

B.Com II Year – IV Semester
Department of Commerce and Business Management, Kakatiya University, Warangal
BC407: Auditing

Max. Marks: 80UE+20IA

UNIT-I: INTRODUCTION:
Auditing: Meaning – Definition – Evolution – Objectives – Importance -Types of Audit –
Standards of Auditing – Procedure for issue of standards by AASB.

UNIT–II: AUDITOR AND EXECUTION OF AUDIT:
Appointment – Qualification and Disqualification – Qualities – Remuneration – Removal –
Rights
– Duties – Civil and Criminal Liabilities of Auditors – Commencement of Audit –Engagement
Letter – Audit Program – Audit Note Book – Audit Workbook – Audit Markings.

UNIT–III: INTERNAL CONTROL, INTERNAL CHECK AND INTERNAL AUDIT:
Meaning and Objectives of Internal Control – Internal Check and Internal Audit – Internal Check
Vs. Internal Audit – Internal Control vs. Internal Audit.

UNIT–IV: VOUCHING:
Meaning – Objectives – Types of Vouchers – Vouching of Trading Transactions – Vouching Cash
Transaction – Auditing in an EDP Environment.

UNIT–V: VERIFICATION AND VALUATION OF ASSETS:
Meaning and Definition – Distinction – Verification and Valuation of various Assets and
Liabilities– Audit Committee – Role of Audit Committee – Audit Reports.

SUGGESTED BOOKS:
1. Principles and Practice of Auditing: RG Saxena, Himalaya Publishing House.
2. Auditing and Assurance for CA Integrated Professional Competence: SK Basu, Pearson.
3. Auditing: ArunaJha, Taxmann Publications.
4. Auditing Principles, Practices & Problems: Jagdish Prakash, Kalyani Publishers.
5. Auditing and Assurance: Ainapure&Ainapure, PHI Learning.
6. Principles and Practice of Auditing: DinkarPagare, Sultan Chand & Sons.
7. Fundamentals of Auditing: Kamal Gupta andAshok Arora, Tata McGraw-Hill
8. A Hand Book of Practical Auditing: B.N. Tandonetal., S. Chand.

SYLLABUS

GENDER SENSITISATION

Unit – I (Theory) 1 credit – 1 hour of instruction per week.

1. Gender: Definition, Nature and Evolution, Culture, Tradition, Historicity.
2. Gender Spectrum: Biological, Sociological, Psychological Conditioning.
3. Gender based division of labour – domestic work and use value.
4. Gender, Human Rights and Parity (parallel progress of both genders).

Unit – II (Practical Activity) 1 credit – 2 hours of activity per week.

Group discussion, Presentation, Role play, Survey, Case studies, Group project based on following issues:

- Respect and Co-Existence.
- Social, Biological, Psychological, Political, Economic, Cultural, Health issues.
- Domestic Violence, Eve-teasing, Sexual Harassment.
- Real Life Experiences of Gender Interaction.
- Print and Electronic Media and Gender Inequalities.
- Contemporary Challenges.

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Department of Commerce and Business Management,
Kakatiya University, Warangal
B.Com Final Year – V Semester

BC501: Consumerism

Max. Marks: 40UE+10IA

UNIT – I: Consumerism- Concept - Need and Scope of Consumerism- Origin of Consumer Movement – Consumer movement in India- Marketization and Consumerism in India - Consumer in India - Consumer of goods and services - Professional services - Medical, legal, educational and welfare services- Rights and Responsibilities of Consumerism- Unfair Trade Practices –Consumer Voluntary Organisations

UNIT – II: Consumer Protection Act, 1986 – Objectives – Definition of Terms – complainant, consumer dispute, defect, deficiency in service, service, unfair trade practices, restrictive trade practices - UN guidelines for Consumer Protection. Emergence of new Consumer Movements: Green Consumerism. Consumer action groups, consumer resistance, consumer boycotts, lobbying, consumer guidance - Nature and Functions-Role and working of Consumer Voluntary Organisations in Grievance Settlement.

Suggested Readings:

1. Paul M.C., Consumer Redressal System and Consumer Protection in India, Kalpaz Publications, 2015.
2. Darmanand Mishra, Consumer Protection, APH Publishing Corporation, 2012.

Department of Commerce and Business Management,
Kakatiya University, Warangal

B.Com Final Year – V Semester

BC502: Organizational Behaviour

Department of Commerce and Business Management,
Kakatiya University, Warangal

B.Com Final Year – V Semester

BC503: Cost Accounting

Max. Marks: 80UE+20IA

UNIT-I: INTRODUCTION: Cost Accounting: Definition – Features – Objectives – Functions – Scope – Advantages and Limitations - Essentials of a good cost accounting system- Difference between Cost Accounting and Financial Accounting – Cost concepts – Cost Classification – Preparation of cost sheet(including problems)

UNIT-II: MATERIAL: Direct and Indirect Material cost – Inventory Control Techniques – Stock Levels – EOQ – ABC Analysis – JIT-VED-FSND -Issue of Materials to Production – Pricing methods: FIFO-LIFO with Base Stock and Simple and Weighted Average methods. (Including problems)

UNIT-III: LABOUR AND OVERHEADS: Labour: Direct and Indirect Labour Cost – Methods of Payment of Wages (only Incentive Plans): Halsey, Rowan, Taylor Piece Rate and Merrick Multiple Piece Rate Methods. Overheads: Classification - Methods of Allocation - Apportionment and Absorption of overheads. (including problems)

UNIT-IV: UNIT COSTING AND JOB COSTING: Unit Costing: Features - Cost Sheet – Tender and Estimated Cost Sheet. Job Costing: Features - Objectives – Procedure - Preparation of Job Cost Sheet.(including problems)

UNIT-V: CONTRACT AND PROCESS COSTING: Contract Costing: Features - Procedure of Contract Costing – Guidelines to Assess profit on incomplete Contracts – Advantages Process Costing: Meaning – Features – Preparation of Process Account – Normal and Abnormal Losses.(including problems)

SUGGESTED BOOKS:
1.Cost Accounting: Jain and Narang, Kalyani
2. Cost Accounting: M.N. Arora, Himalaya
3. Cost and Management Accounting: PrashantaAthma, Himalaya
4. Cost Accounting: Jawaharlal, Tata Mcgraw Hill
5. Cost Accounting: Theory and Practice: Banerjee, PHI
6. Introduction to Cost Accounting: Tulsian, S.Chand
7. Cost Accounting: Horngren, Pearson
8. Cost Accounting: Ravi M. Kishore, Tax Mann Pulications.

B.Com Final Year – V Semester

BC504: Business Law

Max. Marks: 80UE+20IA

UNIT–I: INTRODUCTION TO INDIAN CONTRACT ACT 1872:
Development of Business Law - Development of Law in Independent India Contract Act 1872: Agreement and contract - Essentials of a valid contract - Types of contracts - Offer and Acceptance- Essentials of valid offer and acceptance - Communication and revocation of offer and acceptance - Consideration definition - Essentials of valid consideration - Doctrine of "Stranger to a contract"- "No consideration- No contract" - Capacity to a contract - Minors agreements.

UNIT–II: INDIAN CONTRACT ACT 1872:
Legality of Object and Consideration - Agreements Expressly Declared To Be Void - Wagering Agreements - Contingent Contracts.
Discharge of Contract: Modes of Discharge - Performance of Contracts - Breach of Contract - Remedies for Breach.

UNIT–III: SALE OF GOODS ACT 1930:
Contract of Sale: Essentials of Valid Sale - Sale and Agreement to Sell – Definition and Types of Goods - Conditions and Warranties - Caveat Emptor - Exceptions - Transfer or Passing of Property: Time When Property Passes, Rules of Transfer of Property, Transfer of Ownership - Sale by Non-Owners and its Exceptions - Unpaid Seller - Rights of Unpaid Seller.
Consumer Protection Act 1986: Definitions of Consumer – Person – Goods - Service -Consumer Dispute - Unfair Trade Practice - Restrictive Trade Practice – Defect - Deficiency - Consumer Protection Councils - Consumer Dispute Redressal Agencies - District Forum - State Commission and National Commission - Procedure to Lodge a Complaint for Redressal – Appeals.

UNIT–IV: TRADE MARKS, PATENTS, COPY RIGHTS & INTELLECTUAL PROPERTY RIGHTS:
Trade Marks: Definition - Procedure for Registration of Trade Marks - Patents: Definition- Kinds of Patents- Transfer of the Patent Rights- Rights of the Patentee- Copy Rights: Definition- Essential Conditions for Copy Rights to be Protected-Rights of the Copyright Owner-Terms of Copy Right-Copy Rights Infringement - Other Intellectual Property Rights: Trade Secrets - Geographical Indications.

UNIT–V: INFORMATION TECHNOLOGY ACT & ENVIRONMENTAL PROTECTION ACT:
Information TechnologyAct-2000: Objectives - Digital Signature - Electronic Governance - Penalties and Adjudication.
Environmental Protection Act 1986: Object - Scope and Scheme of the Act – Definitions - General Powers of the Central Government – Prevention - Control and Abetment of Environmental Pollution – Offences and Penalties.

SUGGESTED BOOKS:
1) Company Law: Kapoor, Sultan Chand and Co.
2) A Manual of Business Laws: S.N. Maheshwari& S.K. Maheshwari, Himalaya
3) Business Laws: KC Garg & RC Chawla ,Kalyani Publishers.
4) Business Law: PC Tulsian& Bharat Tulsian, McGraw Hill Education
5) Business Law: TejpalSheth, Pearson.
6) Business Law: MC Kuchal&VivekKuchal, Vikas Publishing House.

UNIT-I: INTRODUCTION:

Origin and Growth of Banking in India - Functions of Commercial Banks financial inclusion-public vs. private sector banks- foreign banks-payment banks-universal banking-Emerging Trends in Commercial Banking in India: E-Banking – Mobile Banking - Core Banking – Bank Assurance – OMBUDSMAN—types of deposits-time deposits-current and savings accounts-importance of current and savings accounts—zero balance accounts.

UNIT-II: RESERVE BANK OF INDIA:

RBI -Functions–control of credit–objectives—instruments-repo rate-reverse repo rate-bank rate-statutory liquidity ratio-cash reserve ratio-money market-role of RBI in money market—role of RBI in exchange rate.

UNIT-III: WORKING OF COMMERCIAL BANKS AND TYPES OF BANKS :

Prudential norms-income recognition, asset classification, investments and provisioning--concepts of base rate and net interest margin-importance of Current and Types of banks-Co-Operative Banks –Regional Rural Banks -National Bank for Agriculture and Rural Development (NABARD)

UNIT-IV: BANKER AND CUSTOMER RELATIONSHIP:

Definition of Banker and Customer - Relationship Between Banker and Customer - KYC norms-General and Special Features of Relationship –precautions to be taken by a banker in opening of accounts of special Types of Customers Like Minor, Married Women, Partnership Firms, Companies, Clubs and other Non-Trading Institutions.

UNIT-V: NEGOTIABLE INSTRUMENTS:

Descriptions and their Special Features - Duties and Responsibilities of Paying and Collecting Banker - Circumstances under which a Banker can refuse Payment of Cheques – Consequences of Wrongful Dishonors - Precautions to be taken while Advancing Loans Against Securities – Goods - Documents of Title to Goods - Loans against Real Estate -Insurance Policies - Against Collateral Securities – Banking Receipts.

Rule in Clayton's Case - Garnishee Order – Loans against Equitable Mortgage - Legal Mortgage-Distinction between them - Latest Trends in Deposit Mobilization.

SUGGESTED BOOKS:

1. Banking Theory & Practices: Dr. P. K. Srivatsava, Himalaya Publishers
2. Banking Theory & Practices: K.E. Shekar, Vikas Publications
3. Banking Theory, Law & Practices: R. R Paul, Kalyani Publishers
4. Banking: N.T. Somashekar, New Age International Publishers
5. Fundamentals of International Banking: Rup Narayan Bose, Trinity Publishers
6. Modern Commercial Banking: H.R. Machiraju, New Age International Publishers
7. Banking Theory & Practices: R. Rajesh, Tata McGraw Hill
8. Merchant Banking & Financial Services: S. Guruswamy, Tata McGraw Hill
9. Management of Banking & Financial Services; Padmalatha Suresh, Pearson
10. Modern Banking: D. Muralidharan, PHI.

B.Com Final Year – V Semester

BC506: Computerized Accounting

Max. Marks: 80UE+20IA

UNIT-I: COMPUTERIZED ACCOUNTING:
Introduction–Importance-Application -Advantages and disadvantages – Difference between Manual Accounting and Computerised Accounting – Features of Accounting packages – Creation of Company–Groups–Ledgers, Pre-defined vouchers - Displaying - Altering – Deleting of vouchers, ledger and company.- Reports: Account Books – Registers - Statement of Accounts - Bank Reconciliation Statement - Day Book – Cash and Bank Books- Final Accounts of Sole Traders: Trail Balance - Profit and Loss Account - Balance Sheet.

UNIT-II: ACCOUNTS WITH INVENTORY:
Creation of Company with inventory and stock – Creation of Groups - Stock categories - Stock items – Godowns - Units of Measure - Inventory Vouchers - Pure Inventory Vouchers - Creating purchase order & Sales order – Invoicing - Display of inventory reports & statements.

UNIT-III: FINAL ACCOUNTS OF BUSINESS ORGANISATIONS:
Preparation of Final Accounts for Nonprofit organizations-Partnership firms - Corporate companies - Bank Accounts.

UNIT-IV: COST AND MANAGEMENT ACCOUNTING:
Preparation of Stores Legers – Job costing - Common size statement - Funds Flow Statement - Cash Flow Statement-Ratio Analysis

UNIT-V: TAX ACCOUNTING:
Tax applications- Introduction to VAT - VAT activation and classification - VAT computation - Composite VAT - Input VAT on capital goods

SUGGESTED BOOKS:
1. Computerized Accounting: A.Murali Krishna, Vaagdevi publications
2. Aakash Business Tools: Spoken Tutorial Project IIT Bombay
3. Mastering Tally: Dinesh Maidasani, Firewal Media
4. Implementing Tally ERP 9: A.K Nadhani and K.K Nadhani, BPB Publications
5. Computerised Accounting and Business Systems: KalyaniPublications
6. Manuals of Respective Accounting Packages
7. Tally ERP 9: J.S. Arora, KalyaniPublications.
8. Business accountingusing Tally ERP.9 by Tally Education

B.Com Final Year – V Semester (General)

BC507: FINANCIAL MANAGEMENT

Max. Marks: 80UE+20IA

UNIT–I: INTRODUCTION:
Financial Management: Meaning - Nature and Scope – Importance - Objectives - Profit Maximization vs Wealth Maximization – Traditional Functions of Finance Manager – Changing Role of Finance Manager – Relationship between Financial Management and Other Management Areas (Theory).

UNIT–II: FINANCIAL PLANNING:
Sources of Finance **-** Financial Planning: Meaning and Definition – Objectives – Characteristics – Process – Factors - Limitations (Theory).

UNIT–III: CAPITALIZATION:
Meaning of Capital and Capitalization – Sources of Capital - Theories of Capitalization – Over Capitalization: Meaning -Causes – Consequences - Remedies - Under Capitalization: Meaning – Causes – Consequences - Remedies - Comparison of Under and Over Capitalization – Watered Stock (Theory).

UNIT–IV: COST OF CAPITAL:
Meaning and Definition – Significance – Classification of Costs – Problems in Determination of Cost of Capital – Cost of Debt - Cost of Perpetual and Redeemable Debt - Cost of Preference Capital - Cost of Equity Capital – Cost of retained earnings-Weighted Average Cost of Capital (Simple Problems).

UNIT–V: CAPITAL STRUCTURE:
Meaning – Importance – Factors – Types – Optimal Capital Structure – Theories of Capital Structure: Net Income Approach - Net Operating Income Approach - Traditional Approach - Modigliani and Miller Approach (Simple Problems).

SUGGESTED READINGS:

1. Financial Management: I M Pandey, Vikas Publishing House Pvt Ltd.
2. Financial Management:M.Y. Khan & P.K. Jain, Tata McGraw-Hill
3. Financial Management: Shashi K. Gupta & R.K. Sharma, Kalyani Publishers,
4. Financial Management: R.M. Srivastava, Himalaya Publishing House, Hyderabad.
5. Financial Management:Prasanna Chandra,McGraw Hill
6. Financial Management: Rustagi, Taxman Publications.
7. Fundamentals of Financial Management: Sharan,Pearson

Department of Commerce and Business Management, Kakatiya University, Warangal

B.Com III Year – V Semester (General)

BC508: PRINCIPLES OF MARKETING

Max. Marks: 80UE+20IA

UNIT-I: INTRODUCTION:
Meaning and Definition of Marketing – Scope – Evolution of Marketing Concept - Production concept - Product concept - Marketing Myopia – Selling Concept - Marketing Concept - Societal Marketing Concept - Objectives - Role of Marketing in Economic Development - Marketing Mix - Direct Marketing - Online Marketing Challenges and Opportunities - Marketing of Services.

UNIT-II: MARKET ENVIRONMENT:
Micro Environment: Company – Suppliers - Marketing Intermediaries – Customers – Competitors - Publics - Macro Environment: Demographic – Economic – Natural – Technological – Political - Legal (Consumer Protection Act 1986) and Regulatory - Cultural - Social - International Marketing GATT & WTO.

UNIT-III: MARKET SEGMENTATION:
Concept of Target Market - Diffused Market - Concentrated Market - Clustered Market - Market Segmentation: Concept – Bases – Benefits - Requirement for Effective Segmentation - Market Segmentation Analysis for Consumer and Services - Product Positioning: Concepts - Bases.

UNIT-IV: CONSUMER BEHAVIOUR:
Consumer Behavior: Nature – Scope – Importance - Factors: Economic – Psychological – Cultural - Social and Personal - Steps in consumer Decision Process - Post Purchase Behavior - Cognitive Dissonance - Organizational Buyer - Industrial Markets - Reseller Market - Government Market - Characteristics of Organizational Buyer - Organizational Buying Process - Organizational Buyer Vs. Consumer Behavior.

UNIT-V: MARKET RESEARCH & ETHICS IN MARKETING:
Market Research: Meaning - Definition - Marketing Research Process: Defining the Objectives of Research – Need - Designing the Research Project - Data Collection Process - Analyzing Data - Presenting Results - Scope of Marketing Ethics - Ethical issues Associated with Marketing Decisions Creating an Ethical climate in work place - Influence of personal Ethics.

SUGGESTED READINGS:
1. Principles of Marketing: Philip Kotler, Pearson.
2. Marketing Management: Philip Kotler, Kevinlane Keller, Abraham Koshy, and Pearson.
3. Marketing: Dhruv Grewal, Michael levy, Tata McGraw Hill.
4. Marketing Management: Dr. K. Karunakaran, Himalaya Publications.
5. Marketing Management: Ramaswamy&Namakumari, Tata Mc GrawHill Publication.
6. Marketing Management: CN Sontakki, Kalyani Publication.

B.Com III Year – V Semester (Finance)

BCO507: FINANCIAL MANAGEMENT

Max. Marks: 80UE+20IA

UNIT–I: INTRODUCTION:
Financial Management: Meaning - Nature and Scope – Importance - Objectives - Profit Maximization vs Wealth Maximization – Traditional Functions of Finance Manager – Changing Role of Finance Manager – Relationship between Financial Management and Other Management Areas (Theory).

UNIT–II: FINANCIAL PLANNING:
Sources of Finance **-** Financial Planning: Meaning and Definition – Objectives – Characteristics – Process – Factors - Limitations (Theory).

UNIT–III: CAPITALIZATION:
Meaning of Capital and Capitalization – Sources of Capital - Theories of Capitalization – Over Capitalization: Meaning -Causes – Consequences - Remedies - Under Capitalization: Meaning – Causes – Consequences - Remedies - Comparison of Under and Over Capitalization – Watered Stock (Theory).

UNIT–IV: COST OF CAPITAL:
Meaning and Definition – Significance – Classification of Costs – Problems in Determination of Cost of Capital – Cost of Debt - Cost of Perpetual and Redeemable Debt - Cost of Preference Capital - Cost of Equity Capital – Cost of retained earnings-Weighted Average Cost of Capital (Simple Problems).

UNIT–V: CAPITAL STRUCTURE:
Meaning – Importance – Factors – Types – Optimal Capital Structure – Theories of Capital Structure: Net Income Approach - Net Operating Income Approach - Traditional Approach - Modigliani and Miller Approach (Simple Problems).

SUGGESTED READINGS:

1.   Financial Management: I M Pandey, Vikas Publishing House Pvt Ltd.
2.   Financial Management:M.Y. Khan & P.K. Jain, Tata McGraw-Hill
3.   Financial Management: Shashi K. Gupta & R.K. Sharma, Kalyani Publishers,
4.   Financial Management: R.M. Srivastava, Himalaya Publishing House, Hyderabad.
5.   Financial Management:Prasanna Chandra,McGraw Hill
6.   Financial Management: Rustagi, Taxman Publications.
7.   Fundamentals of Financial Management: Sharan,Pearson.
8.   Financial Management: Tulsian, S. Chand.
9.   Financial Management: Satish B Mathur, Trinity Press.
10. Fundamentals of Financial Management: D.Chandra Bose, PHI.

B.Com III Year – V Semester (Finance)

BC508: FINANCIAL SERVICES
Max. Marks: 80UE+20IA

UNIT–I: INTRODUCTION:
Financial Services: Meaning-Functions- Classification- Scope – Fund Based Activities - Non-fund Based Activities – Modern Activities - Causes for Financial Innovation – New Financial Products and Services – Innovative Financial Instruments – Challenges Facing the Financial Service Sector – Present Scenario.

UNIT–II: MERCHANT BANKING:
Definition – Origin of Merchant Banking in India – Merchant Banks and Commercial Banks – Services of Merchant Banks – Qualities of Merchant Bankers – Merchant Bankers as Lead Managers – Guidelines – Merchant Bankers Commission – Progress of Merchant Banking in India – Problems and Scope of Merchant Banking in India.

UNIT-III: VENTURE CAPITAL:
Venture Capital: Meaning, Features, Scope, Importance, Origin – Initiative in India – Venture Capital Guidelines – Method of Venture Financing – Indian Scenario – Suggestions for the Growth of Venture Capital.

UNIT–IV: HIRE PURCHASE AND LEASING:
Hire Purchase:Features – Legal Position – Hire Purchase and Credit Sales – Hire Purchase and Installment Sale – Hire Purchase and Leasing – Origin and Development – Banks and Hire Purchase Business.

Leasing: Definition – Steps in Leasing Transactions – Types of Lease – Financial Lease – Operating Lease – Leverage Lease – Sale and Lease Back – Advantages and Disadvantages of Lease-Structure of Leasing Industry – Problems and Prospects.

UNIT–V: DISCOUNTING, FACTORING AND FORFEITING:
Discounting:Concept – Types of Bills – Differences between Bill Purchase, Bill Discounting and Bill Negotiating – Advantages of Bill Discounting – RBI Guidelines to control misuse of bill discounting.

Factoring and Forfeiting: Meaning and Nature of Factoring – Parties in Factoring – Merits and Demerits of Factoring – Types – Factoring in India – Factoring Regulation Act, 2011 – Parties to Forfeiting – Costs of Forfeiting – Benefits of Forfeiting for Exporters and Importers – Recent Developments in Solving Problems in Forfeiting – Differences between Factoring and Forfeiting.

SUGGESTED READINGS:

1. Financial Institutions & Markets: Shashi K Gupta, Nisha Aggarwal &Neeti Gupta, Kalyani.
2. Financial Markets and Services: Gordon and Natarajan, Himalaya Publishing House.
3. Financial Services: Dr. C Satyadevi, S. Chand & Company Pvt. Ltd.
4. Financial Services and Markets: Dr. Punithavathy Pandian, Vikas Publishing House Pvt. Ltd.
5. Indian Financial System: Dr. S C Bihari, International Book House Pvt. Ltd.
6. Financial Services:M.Y. Khan, Tata Mc-Graw Hill.
7. Financial Services: T. Siddaiah, Pearson Education.Publishers

B.Com III Year – V Semester (Accounting)

BC507: Financial Statement Analysis

Max. Marks: 80UE+20IA

UNIT-I: INTRODUCTION:

Financial Statements: Meaning – Components: Assets – Liabilities – Equity - Income   and Expenditure and their features – Constituents: Income Statement and Balance Sheet their features - Information incorporated and their Qualitative requirements - Limitations. (Theory only)

UNIT-II: TECHNIQUES OF FINAICAL STATEMENT ANALYSIS:

Meaning – Objectives - Techniques: Comparative Statement, Common Size Statement, Trend Analysis.(Including problems)

UNIT-III: RATIO ANALYSIS:

Meaning – Objectives – Classification – Advantages and Limitations – Computation of various ratios: Activity Ratios - Liquidity Ratios - Solvency Ratios - Profitability Ratios.(including problems)

UNIT-IV: FUNDS FLOW ANANLYSIS:

Concept of Fund – Meaning and Importance – Statement of Changes in Working Capital – Statement of Sources and Application of Funds – Limitations (Including problems)

UNIT-V: CASH FLOW ANALYSIS (AS-3):

Meaning – Importance – Differences between Funds Flow and Cash Flow Statements – Procedure for preparation of Cash Flow Statement (including problems)

SUGGESTED READINGS:
1. Financial Statement Analysis: George Foster, Pearson
2. Financial Statement Analysis: K R Subramanyam, TMH
3. Financial Statement Analysis: George Foster, Pearson ----Repeated ---Pl. delete
4. Advanced Management Accounting: Ravi M Kishore, Taxmann
5. Management Accounting: S.P.Gupta
6. Accounting for Managerial Decisions: Shashi K Gupta, Kalyani Publishers

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B.Com III Year – V Semester (Accounting)

BC508: Indian Accounting Standards

Max. Marks: 80UE+20IA

UNIT-I: INTRODUCITON:
Accounting Standards: Meaning - Need – Importance - Compliance with Accounting Standards – Scope. Accounting Standards Board of India: Objectives – Procedure for Issue Accounting Standards – IAS and IFRS.

UNIT-II: AS 1 to AS 9:
AS-1: Disclosure of Accounting Policies – AS-2: Valuation of Inventories – AS-3: Cash Flow Statement – AS-4: Contingencies and Events Occurring after Balance Sheet Date – AS-5: Net Profit / Loss for the Period, Prior Period, Extraordinary Items and Changes in Accounting   Policies – AS-6: Depreciation Accounting – AS-7: Accounting for Construction Contracts – AS-9: Revenue Recognition.

UNIT-III: AS-10 to AS-17:
AS-10: Accounting for Fixed Assets – AS-11: Accounting for the Effects of Changes in Foreign Exchange Rates – AS-12: Accounting for Government Grants – AS-13: Accounting for Investments – AS-14: Accounting for Amalgamations – AS-15: Accounting for Employee Benefits - AS-16: Accounting for Borrowing Costs - AS-17: Segment Reporting.

UNIT-IV: AS-18 to AS-24:
AS-18: Related Party Disclosures – AS-19: Accounting for Leases – AS-20: Earnings Per Share – AS-21: Consolidated Financial Statements - AS-22: Accounting for Taxes on Income – AS-23: Accounting for Investments in Associates in Consolidated Financial Statements – AS-24: Discontinuing Operations.

UNIT-V: AS-25 to AS-32:
AS-25: Interim Financial Reporting – AS-26: Accounting for Intangibles – AS-27: Financial Reporting of Interests in Joint Ventures – AS-28: Impairment of Assets - AS-29: Provisions, Contingent Liabilities & Contingent Assets – AS-30: Financial Instruments – Recognition and Measurement – AS-31: Financial Instruments – Presentation – AS-32: Financial Instruments – Disclosures.

SUGGESTED READINGS:

1. Accounting Theory and Practice: Jawaharlal, Himalaya Publishing Company
2. Accounting Standards: Rawat D.S, Taxmann Allied Services Private Limited
3. IFRS Concepts and Applications: Kamal Garg, Bharat Law House Pvt. Limited
4. Accounting Theory: Porwal L.S, TataMcGraw-Hill Publishing Company
6. Accounting Theory & Management Accounting: Jain S.P. &Narang K.L, Kalyani
7. Accounting Standards and Corporate Accounting Practices: Ghosh T.P, Taxmann

B.Com Final Year – V Semester (Computer Applications)

BC507: E-COMMERCE

Max.Marks: 50UE+30P+20IA

UNIT-I: INTRODUCTION:

E-Commerce: Meaning- Advantages & Limitations - E-Business: Traditional & Contemporary Model, Impact of E-Commerce on Business Models - Classification of E-Commerce: B2B- B2C - C2B - C2C - B2E - Applications of Ecommerce: E-Commerce Organization Applications - E-Marketing - E- Advertising - E-Banking - Mobile Commerce - E-Trading - E-Learning - E-Shopping.

UNIT-II:FRAMEWORK OF E-COMMERCE:

Framework of E-Commerce: Application Services - Interface Layers - Secure Messaging - Middleware Services and Network Infrastructure - Site Security - Firewalls & Network Security - TCP/IP – HTTP - Secured HTTP – SMTP - SSL.

Data Encryption: Cryptography – Encryption – Decryption - Public Key - Private Key - Digital Signatures - Digital Certificates.

UNIT-III:CONSUMER ORIENTED E-COMMERCE APPLICATIONS:

Introduction - Mercantile Process Model: Consumers Perspective and Merchant's Perspective - Electronic Payment Systems: Legal Issues & Digital Currency - E-Cash & E-Cheque - Electronic Fund Transfer (EFT) - Advantages and Risks - Digital Token-Based E-Payment System - Smart Cards.

UNIT-IV:ELECTRONIC DATA INTERCHANGE:

Introduction - EDI Standards - Types of EDI - EDI Applications in Business – Legal - Security and Privacy issues if EDI - EDI and E-Commerce - EDI Software Implementation.

UNIT-V: E-MARKETING TECHNIQUES:

Introduction - New Age of Information - Based Marketing - Influence on Marketing - Search Engines & Directory Services - Charting the On-Line Marketing Process - Chain Letters - Applications of 5P's (Product, Price, Place, Promotion, People) E-Advertisement - Virtual Reality & Consumer Experience - Role of Digital Marketing.

SUGGESTED READINGS:

1. Frontiers of Electronic Commerce: Ravi Kalakota, Andrew B Whinston, Pearson
2. E-Commerce: An Indian Perspective: P.T. Joseph, S.J, PHI
3. Electronic Commerce, Framework Technologies & Applications: Bharat Bhasker, McGraw Hill
4. Introduction To E-Commerce: Jeffrey F Rayport, Bernard J. Jaworski: Tata McGraw Hill
5. Electronic Commerce, A Managers' Guide: Ravi Kalakota, Andrew B Whinston
6. E-Commerce & Computerized Accounting: Rajinder Singh, Er. KaisarRasheed, Kalyani
7. E-Commerce & Mobile Commerce Technologies: Pandey, Saurabh Shukla, S. Chand

B.Com Final Year – V Semester (Computer Applications)

BC508: OBJECT ORIENTED PROGRAMMING IN C++

Max. Marks: 50UE+30P+20IA

UNIT-I: INTRODUCTION:
Object Oriented Programming: Concepts – Benefits – Languages-Structured vs. Object Oriented Programming. C++: Genesis - Structure of a program – Tokens - Data Types – Operators - Control Structures - C vs C++ - Functions.

UNIT-II: CLASSES, OBJECTS, CONSTRUCTORS AND DESTRUCTORS:
Encapsulation - Hiding - Abstract data types - Object &Classes – Attributes - Methods - C++ class declaration - State identity and behaviour of an object. Purpose of Constructors - Default Constructor - Parameterized Constructors - Copy Constructor - Instantiation of objects - Default parameter value - Object types - C++ garbage collection - Dynamic memory allocation – Meta class/ Abstract classes.

UNIT-III: OVERLOADING, CONVERSIONS, DERIVED CLASSES AND INHERITANCE:

Function and Operator Overloading - Overloading Unary and Binary Operators - Data and Type Conversions -Derived Classes - Concept of Reusability - Visibility modes - Types of Inheritance - Single and Multiple Inheritance - Multilevel Inheritance.

UNIT-IV: POLYMORPHISM, VIRTUAL FUNCTION, STREAMS AND FILES:
Polymorphism - Virtual - Classes - Pointer to Derived class - Virtual functions - Rules for Virtual function - Pure Virtual functions-Stream Classes - Types of I/O - Formatting Outputs - File Pointers – Buffer -C++ Stream - Unformatted console I/O operations – Functions: get( ) - put( ) – formatted console I /O operations - IOS class format functions - Manipulators.

UNIT–V: EXCEPTION HANDLING AND DATA STRUCTURES IN C++:
Exceptions in C++ Programs - Try and Catch Expressions - Exceptions with arguments.
Data Structures: Introduction - Linked list - Stacks - Queues.

SUGGESTED READINGS:

1. Objected Oriented Programming with C++: E.Balagurusamy, McGrawHill.
2. C++ Programming-A Practical Approach:MadhusudanMothe, Pearson.
3. Object Oriented Programming Using C++: Chadha&Chadha, Kalyani.
4. Programming in C++: A.N.Kamthane, Pearson.
5. The Complete Reference C++: H.Schildt, McGrawHill.
6. C++:How to Program: Deitel&Deitel, PHI.
7. Mastering C++: KR.Venugopal&R.Buyya, McGrawHill.
8. Schaum's Outlines:Programming with C++: by John R Hubbard.
9. Object Oriented Programming using C++: Somashekara, PHI.
10. C++ Spoken Tutorials by IIT Bombay.

B.Com III Year – V Semester (Taxation)

BC507: DIRECT TAX – I

Max Marks: 80UE+20IA

UNIT–I: ASSESSMENT OF HINDU UNDIVIDED FAMILY:

Meaning of HUF under Hindu Law and Under Income Tax Act – Schools of Hindu Law – Residential status - Share of Income from HUF Property – Ancestral Property – Coparcener – Conversion of self-acquired property into Joint Family Property – Partition of HUF – Computation of Total Income and tax liability of an HUF.

UNIT-II: ASSESSMENT OF FIRMS AND ASSOCIATION OF PERSONS:

Meaning of Firms - Partner and Partnership – Essential Conditions for Firm assessed as such (PFAAS)

– LLP - Change in the Constitution of Firm and Succession of Firm – Remuneration and Interest Payable to Partners – Provisions regarding set-off and Carry-Forward of losses by Firm – Conditions for assessment of firm as Association of Persons (PFAAOP) – Concept of Conversion of firm into a company – Problems on computation of Tax Liability.

UNIT–III: ASSESSMENT OF COMPANIES-I:

Meaning and types of Company - Residential Status of Company – Incidence of Tax – Scope of Total Income - Provisions relating to computation of different heads of incomes: Income from house property, income from business, capital gains, income from other sources.

UNIT–IV: ASSESSMENT OF COMPANIES-II:

Provisions relating to set off and carry forward of losses – Deductions from GTI with respect to Companies – Computation of taxable income – Problems on computation of taxable income.

UNIT–V: ASSESSMENT OF COMPANIES-III:

Minimum Alternate Tax (MAT): Scheme of MAT – Computation of book profits – Computation of tax liability – Dividend Tax: Special provisions relating to tax on Distributed Profits of Domestic Companies u/s 115O- Special provisions relating to tax on distributed income of domestic companies for buy-back shares u/s 115QA to 115QC -Problems on computation of tax liability of company.

SUGGESTED READINGS:

1) Income Tax Law and Practice: V.P. Gaur & D.B. Narang, Kalyani Publishers.
2) Direct Taxes Law & Practice: Dr. Vinod K. Singhania&Dr.KapilSinghania, Taxmann
3) Income Tax: B.B. Lal, Pearson Education.
4) Income Tax: M.Jeevarathinam& C. Vijay Vishnu Kumar, SCITECH Publications.
5) Taxation: R.G. Saha, Himalaya Publishing House Pvt. Ltd.
6) Income Tax: Johar, McGrawHill Education.
7) Taxation Law and Practice: Balachandran&Thothadri, PHI Learning

B.Com Final Year – V Semester (Taxation)

BC508- INDIRECT TAXES

Max. Marks: 80UE+20IA

UNIT-I: APVAT (Applicable in Telangana) -I:
Historical background – Statement of Objectives and Reasons

Definitions: Appellate Tribunal – Business - Casual trader - Commercial Tax Officer - Dealer - Exempt Sale - Exempted Turnover - Fair Market Value – Goods - Goods Vehicle - Input Tax - Output Tax - Purchase Price - Place of Business – Sale - Sale Price - Tax Invoice - Taxable Sale - Total Turnover - Taxable Turnover - Turnover Tax - Turnover Tax Dealer – VAT - VAT Dealer - Works Contract – Year - Zero-rated sales - Tax Deferment (only theory).

UNIT–II: APVAT (Applicable in Telangana) -II:

Registration Procedure – Determination of Taxable Turnover and Tax Payable – Act not to apply in certain cases – Treatment of Works Contract – Hire Purchase- License and Lucky Draws – Tax Deduction at Source – Input Tax Credit – Tax Returns - Tax Invoices - Credit note and Debit Note – Powers of State Government to grant refund of tax (Including Problems).

UNIT–III: CENTRAL EXCISE ACT:

Central Excise Tariff Act – Principles of Classification – Chapter Notes and Section Notes – Kinds of Excise Duty – Specific Duty - Tariff Value Based on Maximum Retail Price - Compounded levy - Advalorem Duty – Assessable Value – Transaction Value – Inclusions in and Exclusions from Transactional Value – Computation of Assessable Value (Including Problems).

UNIT–IV: CUSTOMS ACT:

Meaning and purpose of Customs Duty – Charging Section.

Definitions: Assessment – Baggage - Coastal Goods - Customs Station - Customs Area - Dutiable Goods – Export - Export Goods – Goods - Foreign Going Vessel – Import - Imported Goods – Indian Customs Waters – Stores - Smuggling – Types of Duties – Customs Tariff Act 1975 Import Procedure

– Valuation of Imported Goods – Assessment – Levy and Collection of Duty – Refund of Duty –
Remission and Abatement of duty (Including Problems).

UNIT–V: SERVICE TAX:

Historical Background – Overview of specified taxable services – Understand the taxability of specified services – Valuation – Export of Services – Payment of Service Tax – Registration – CENVAT Credit – Assessment Procedure – Offences – Penalties and Prosecution – Appeals.

SUGGESTED READINGS:

1. Indirect Taxes: V. S. Datey, Taxmann Publishers
2. Essays on Central Sales Tax Act, : P.S. Chandrasekhar, Sai Publications,
3. Service Tax: Taxmann Publications
4.AP Valued Added Tax Ordinance & Rules: Issued by Commissioners Taxes
5. Wealth Tax Act and Central Sales Tax Act: Gaur &Narang, Kalyani Publishers
6. Bare Acts of Indirect Taxes

B.Com Final Year – VI Semester

BC601: Preparation of Tax Returns

Max. Marks: 40UE+10IA

UNIT-I: INTRODUCTION

E-filing of Income Tax Returns and E-Payment of Income Tax – Application for PAN – Online Registration of PAN Income Tax Returns of Individuals – Utility Available for Preparation of Return – Viewing of Tax Credit Available in Form 26AS – Filing of Various Returns of Income for an individual i.e., ITR-1 to ITR-4 with Digital Signatures and Without Digital Signatures.

UNIT-II: GST

Overview of GST Act – Concepts – Dealer Registration Procedure – Filing of Return – Tax calculation and issues involved in standardization of taxes.

REFERENCE BOOKS
1. Vinod K Singhania and Dr Kapil Singhania, Direct Taxes Law & Practice, Taxman Publications.
2. Dr Girish Ahuja and Ravi Gupta, Direct Taxes Law & Practice, Bharat Publications.

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B.Com Final Year – VI Semester

BC602: Advertising

**Department of Commerce and Business Management,
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B.Com Final Year – VI Semester

BC603: Managerial Accounting

Max. Marks: 80UE+20IA

UNIT-I: INTRODUCTION:
Managerial Accounting: Features – Objectives – Scope – Functions – Advantages and   Limitations – Relationship between Cost, Management and Financial Accounting.

UNIT-II: COST-VOLUME-PROFIT ANALYSIS:
 Introduction – Importance – Techniques: Marginal and Break Even Analysis – Break-Even Analysis: Meaning – Assumptions – Importance- Calculation of BEP - Limitations.

UNIT-III: MARGINAL COSTING AND DECISION MAKING:
Marginal Costing: Meaning – Marginal Cost Equation – Difference between Marginal Costing and Absorption Costing – Marginal Costing and Decision Making: Product Decisions – Pricing Decisions - Make or Buy Decisions.

UNIT-IV: BUDGETARY CONTROL:
Budget: Meaning – Objectives — Essentials of Budgets - Budgetary Control - Classification of Budgets-Preparation of Budgets - Advantages and Limitations

UNIT-V: WORKING CAPITAL:
Working Capital: Meaning – Classification – Importance – Objectives –Estimation of Working Capital Requirements- Management of Current Assets.

SUGGESTED BOOKS:
1. Introduction to Management Accounting: Charles T, Horngren et al, Pearson
2. Management Accounting: S.P.Gupta
3. Management Accounting: Manmohan &Goyal
4. Management Accounting: Sharma Shashi K. Gupta, Kalyani Publishers
5. Management Accounting: MN Arora, Himalaya
6. Management Accounting: Khan & Jain, Tata McGraw Hill
7. Accounting for Management: SN Maheshwari, Vikas Publications.

B.Com Final Year – VI Semester

BC604: Company Law

Max. Marks: 80UE+20IA

UNIT-I: INCORPORATION OF COMPANIES:

Company: Meaning and Definition – Characteristics - Classification – Legislation on Companies – Incorporation - Promotion – Registration - Memorandum of Association – Articles of Association – Certificate of Incorporation - Prospectus – Statement in lieu of Prospectus – Commencement of business.

UNIT–II: MANAGEMENT OF COMPANIES:

Director: Qualification - Disqualification - Position - Appointment - Removal – Duties and Liabilities – Loans – Remuneration – Managing Director – Corporate Social Responsibility – Corporate Governance.

UNIT–III: COMPANY SECRETARY:

Company Secretary: Definition – Appointment – Duties – Liabilities – Company Secretary in Practice – Secretarial Audit.

UNIT–IV: COMPANY MEETINGS:

Meeting: Meaning – Requisites - Notice – Proxy - Agenda – Quorum – Resolutions – Minutes – Kinds – Shareholder Meetings - Statutory Meeting - Annual General Body Meeting – Extraordinary General Body Meeting – Board Meetings.

UNIT–V: WINDING UP:

Meaning – Modes of Winding Up –Winding Up by tribunal – Voluntary Winding Up – Compulsory Winding Up – Consequences of Winding Up –Removal of name of the company from Registrar of Companies

SUGGESTED BOOKS:
1) Company Law: ND Kapoor, Sultan Chand and Co.
2) Company Law and Practice: GK Kapoor& Sanjay Dhamija, Taxmann Publication.
3) Company Law: Revised as per Companies Act- 2013: KC Garg et al, Kalyani Publication.
4) Corporate Law: PPS Gogna, S Chand.
5) Company Law: Bagrial AK: Vikas Publishing House

B.Com Final Year – VI Semester

BC605: Financial Institutions & Markets

Max. Marks: 80UE+20IA

UNIT–I: INTRODUCTION:

Functions of Financial System – Constituents of Indian Financial System – An Overview of Indian Financial System – Role and Functions of Participants in the Financial Market – Factors.

UNIT–II: FINANCIAL INSTITUTIONS: ALL INDIA DEVELOPMENT BANKS:
Role of Financial Institutions in Economic Development – Types of Financial Institutions.
All India Development Banks: Industrial Finance Corporation of India (IFCI) – Industrial Development Bank of India (IDBI) – Industrial Investment Bank of India Limited (IIBIL) – Industrial Reconstruction Bank of India (IRBI) – Small Industries Development Bank of India (SIDBI) – Infrastructure Development Finance Company Limited (IDFC) – ICICI.

UNIT–III: FINANCIAL INSTITUTIONS: STATE LEVEL DEVELOPMENT BANKS:
State Finance Corporations (SFCs): Objectives and Scope - Management – Financial Resources – Functions – Operations – Performance Appraisal and Problems.
State Industrial Development Corporations (SIDCs): Functions – Resources – Operations – Financial Assistance.

UNIT–IV: MONEY MARKET:
Money Market: Definition, Features, Objectives, Importance, Compositions.
Call Money Market: Operations – Transactions and Participants – Advantages and Drawbacks.
Commercial Bills Market: Definition – Types of Bills – Operations in Bill Market– Importance of Bill Market – Discount Market – Acceptance Market – Drawbacks.
Treasury - Types of Treasury Bills – Operations and Participants – Money Market Instruments – Structure of Indian Money Market – Recent Development in the Indian Money Market.

UNIT–V: CAPITAL MARKET:
Capital Market: Meaning, Objectives, Importance, Functions – Structure of the Indian Capital Market – New Issue Market – Instruments – Security Buyer – Methods of Issus – Intermediaries – Secondary Market – Characteristics and functions of Stock Exchanges – Listing of Securities – Types of Speculators - Stock Exchanges in India – SEBI – Powers and Functions – Primary and Secondary Market Guidelines .

SUGGESTED BOOKS:
1. Financial Markets and Services: Gordon and Natarajan, Himalaya.
2. Financial Institutions & Markets: Shashi K Gupta, Nisha Aggarwal and Neeti Gupta, Kalyani
3. Management of Indian Financial Institutions: R.M.Srivastava&Divya Nigam, Himalaya.
4. Financial Services and Markets: Dr.Punithavathy Pandian, Vikas Publishing House Pvt. Ltd.
5. Indian Financial System: Dr. S C Bihari, International Book House Pvt. Ltd.
6. Financial Institutions and Markets: L.M. Bhole, Tata McGraw Hill.
7. Indian Financial Systems: Pathak, Pearson Education.
8. Financial Markets: Clifford Gomez, Institutions and Financial Services, PHI.

B.Com Final Year – VI Semester

BC606: Commerce Lab

Max. Marks: 60UE+20IE+20LAB

UNIT-I: BASIC BUSINESS DOCUMENTS:
Trade license under Shops and Establishments Act - Labor license from Department of labor - Partnership Deed - Pollution, Health licenses – Quotation - Invoice form and preparation - Computation of simple interest, compound interest and EMI - Way bill used during transport - Debit Note and Credit Note - Audit Report.

UNIT-II: FINANCE, BANKING AND INSURANCE DOCUMENTS:
Promissory Note - Bill of exchange – Cheque - Pay in slip - Withdrawal form - Account opening and Nomination form - Deposit form and Deposit Receipts - Loan application form - Insurance Proposal form and Insurance Policy - ATM Card Application form - Credit appraisal report - Insurance agency application procedure - ESI / PF membership form.

UNIT-III: BUSINESS LEGAL DOCUMENTS:
Memorandum of Association - Articles of Association - Certificate of Incorporation – Prospectus - Certificate of Commencement of Business - Annual Report – Chairman's Speech - Model bye-laws of some society - Society/ Trust registration form - Complaint in a Consumer forum - Complaint under Right to Information Act.

UNIT-IV: DOCUMENTS OF TAXATION:

PAN application under Income Tax Act - TAN application under Income Tax Act - Form:16 to be issued by Employer - TDS and its certificate u/s15 - Income Tax payment challans and Refund Order - Income Tax Returns including TDS Return - Notices under Income Tax Act - Assessment Order - VAT/TOT Dealer-Application and License - Registration under Service Tax.

UNIT-V: BUSINESS CHARTS:
Elements of business - Forms of business organizations - Procedure of incorporation of   companies - Classification of partners with salient features of each of them - International, National, State level and Regional entrepreneurs - Hierarchy of Banking business in India - Tax administration in India - Various taxes imposed in India - Export and import procedure - Purpose and powers of authorities like RBI, SEBI, IRDA, ROC.

COMMERCE LAB FACILITIES:

i) Colleges are required to provide a commerce lab containing all the documents related to commerce and facilities as, computer, printer, OHP, LCD Projector with sufficient furniture.
ii) Teachers should practically explain the documents and help in filling the same in the simulated environment.
iii) Students are required to do the above personally and gain the knowledge of filling the above documents and the same are to be kept in a portfolio.

COMMERCE LAB – PROCEDURE AND EVALUATION:
1) Every student should maintain a record of his experiment/ presentation / demo /field study by participating in the class room at the rate of 3 hours per week under the guidance of the faculty.
2) Their internal assessment examination for 20 marks based on his participation and practice in the lab sessions.
3) All the lab records shall be sent to the examination branch for evaluation for 80 marks by the external examination during the spot valuation like any other answer paper. 20 Exercises/ Demo presentations/ Analysis reports in brief are to be recorded during the lab sessions throughout the year. All the 20 exercises have to be evaluated which carry 4 marks each. (i.e., 20x4 = 80 marks).

Year	Code	Course				
		B.Com General	**B.Com Finance**	**B.Com Accounting**	**B.Com (Computer Applications)**	**B.Com (Taxation)**
B.Com III Year	607	Human Resource Management	Investment Management	Advanced Managerial Accounting	Web Technologies	Direct Tax – II
VI Semester	608	Tax Planning and Management	International Finance	Advanced Corporate Accounting	Relational Data Base Management	Tax Planning and Management

Kakatiya University offers B.Com only in five branches which include B.Com (General), B.Com (Finance), B.Com (Accounting), B.Com (Computer Applications) and B.Com (Taxation). However, colleges should seek separate approval from the university for each branch separately as they are not elective groups with in a section and each one is a separate course.

B.Com Final Year – VI Semester (General)

BC607: HUMAN RESOURCE MANAGEMENT

Max. Marks: 80UE+20IA

UNIT- I: INTRODUCTION:

HRM: Meaning - Importance - Objectives - Evolution - Elton Mayo's Human Relations Theory- HRM in India: Introduction - Human Relation Movement - Scope of HR in India – Recent trends in HR in India.

UNIT-II: HR PLANNING:
Introduction - Need - Process - System – Responsibilities - Methods

UNIT-III: RECRUITMENT AND SELECTION:
Introduction - Concept of Recruitment - Factors affecting Recruitment - Sources of Recruitment - Traditional and Modern methods - Recruitment and Selection Policies - Recruitment Practices in India - Private and Public Sector - Concept of Selection – Selection Process.

UNIT-IV: HUMAN RESOURCE DEVELOPMENT:
Training & Development: Introduction - Meaning of training - Importance of training - Training Needs Identification - Types and Techniques of Training - Need and Importance of Management Development - Training Evaluation.

UNIT-V: PERFORMANCE APPRAISAL:
Concept and Need of employee review - Concept of Employee Appraisal - Types of Appraisal Method – Individual Evaluation Methods - Multiple Person Evaluation Methods - 360 Degree Appraisal - MBO.

SUGGESTED READING:
1. Essentials of HRM and Industrial Relations: P. Subba Rao, Himalaya.
2. Human resource Management: Text & Cases: K. Aswathappa, MC-Graw Hill Foundation
3. HRM with Case Study: Shashi K. Gupta, Rosy Joshi, Kalyani Publishers.
4. Personal Management: C. B. Mamoria, Himalaya Publishing House.
5. Human Resource Management: S. S. Khanka, S. Chand

B.Com Final Year – VI Semester (General)

BC608: TAX PLANNING & MANAGEMENT

Max. Marks: 80UE+20IA

UNIT–I: INTRODUCTION TO TAX PLANNING:

Meaning of Tax Planning – Tax Avoidance – Tax Evasion – Scope of Tax Planning – Methods of Tax Planning – Tax Management: Meaning – Scope of Tax Management: Under the various heads of Salaries - House Property - Profits and Gains of Business or Profession - Capital Gains.

UNIT–II: TAX PLANNING FOR SALARIES & INCOME FROM HOUSE PROPERTY:

Salaries:Advance of Salary – Commutation of Pension – Change of employment before 5 years service under Recognised Provident Fund – Conversion of unrecognised fund into recognised fund – Tax incidence of Perquisite/allowance – Leave travel concession vs. Leave travel allowance – Gratuity –Savings and Investments – D.A. or D.P. be paid as part of salary – Salary earned outside India – Relief under sec.89 – Repayment of interest on educational Loan – Contribution under Pension Scheme – Medical Expenditure. House Property:Concessional treatment with respect to one self-occupied house – Availing self- occupancy concession for more than one house – Acquisition of house out of own capital vs. Borrowed capital – Acquisition of Self-occupied House out of Borrowed Capital – Deduction of Municipal taxes on Payment basis – Purchasing of House Property in the Name of Spouse having no income or negligible income – Choosing the best option where more than one House is under Self-occupancy.

UNIT–III: TAX PLANNING FOR PROFIT AND GAINS OF BUSINESS OR PROFESSION AND CAPITAL GAINS:

Business:Business Premises - Own or Lease – Depreciation – Expenditure on Scientific Research – Amortisation of certain preliminary expenses – Expenditure on Advertisement – Investment in capital assets – Compensation for breach of an agreement relating to the purchase of an asset – Expenses on borrowing – Tax audit – Compulsory maintenance of accounts – Payment exceeding Rs. 20,000 to be made by Account Payee Cheque. Capital Gains: Consideration to be realised before transfer – Transfer of capital asset at a suitable time – Fair Market Value as on 1st April-1981 to be opted as the cost of acquisition – Concessional Rate of tax – Specific exemption – Forfeiture of exemption – Choice of investment – Sale timings of an asset- held by a minor child – Avoidance of capital gain on the sale of depreciable asset.

UNIT-IV: TAX PLANNING FOR NEW INDUSTRIAL ESTABLISHMENTS AND INVESTMENTS:

Tax planning with reference to New Industrial Establishment – Location - Form - Nature and Capital Structure - Short term loans - Term loans - Public Deposits - Bonus Issues – Dividend.

UNIT-V: TAX PLANNING FOR MANAGERIAL DECISIONS:

Tax considerations arising with regard to specific management decisions: Make/buy - Own/lease - Installment/hire purchase - Retain/replace - Export/local sale - Shut Down/continue Expand/ Contract - Merger and Amalgamations.

SUGGESTED READINGS:

1) Corporate Tax Planning and Management: V.P.Gaur, D.B. Narang& Rajeev Puri, Kalyani.
2) Corporate Tax Planning & Business Tax Procedures: Vinod K. Singania& Monica Singhania, Taxmann.

B.Com Final Year – VI Semester (Finance)

BC607: INVESTMENT MANAGEMENT

Max. Marks: 80UE+20IA

I: INTRODUCTION:

Investment Management: Meaning and Definition – Objectives - Scope–Investment Vs Speculation–Investment Vs Gambling-Factors affecting Investment Decisions–Investment Alternatives-Types of Investors (Theory).

UNIT–II: RISK AND RETURN:

Meaning of Risk– Risk Vs Uncertainty–Causes of Risk–Types of Risks–Risk and Return of a Single Asset–Ex-Ante and Ex-Post–Risk-Return Relationship–Risk-Return Trade off (Simple Problems).

UNIT–III: MARKET INDICES:

Concept of Index–Methods of computing stock indices–Leading Stock Price Indices in India–Sensex and Nifty–Uses of Market Index (Simple Problems).

UNIT–IV: TIME VALUE OF MONEY:

Concept - Techniques - Compounding Techniques - Doubling Period - Multiple Compounding Period - Present Value Techniques (Simple Problems).

UNIT–V: PORTFOLIO ANALYSIS:

Traditional Vs Modern - Rationale of Diversification - Markowitz portfolio theory - Effect of combining the securities - Measurement of expected return and risk of portfolio (Simple Problems).

SUGGESTED READINGS:

1. Investment Management (Text and Cases): V.K. Bhalla, S. Chand & Company.
2. Security Analysis and Portfolio Management: Shashi K. Gupta & Rosy Joshi,Kalyani Publishers.
3. Investment Management: Dr. V.A. Avadhani, Himalaya Publishing House.
4. Fundamentals of Investment Management: Preeti Singh, Himalaya Publishing House
5. Security Analysis and Portfolio Management: Kevin, PHI.
6. Investment Analysis and Portfolio Management: Prasanna Chandra,Tata McGraw-Hills
7. Investment Management, PrashantaAthma: Kalyani Publications.
8. Security Analysis and Portfolio Management: MadhumatiRanganathan, Pearson.
9. Investment Management: Masheswari, PHI.
10. Security Analysis and Portfolio Management: Dhanesh Khatri, Trinity Pre

B.Com Fianl Year – VI Semester (Finance)

BC608: INTERNATIONAL FINANCE

Max. Marks: 80UE+20IA

UNIT–I: INTRODUCTION:

International Finance: Meaning – Nature - Scope – Importance – Features - Goals -IFM and Domestic Financial Management–Role of International Financial Manager in Multinational Corporations -Relationship between IFM and Other Management Areas–International Financial Environment(Theory).

UNIT–II: INTERNATIONAL MONETARY SYSTEM:

Specie Commodity Standard–Gold Standard –Bretton Woods System of Exchange Rates–Exchange Rate Regime since 1973–International Liquidity– IMF Solution for Financial Crisis (Theory).

UNIT–III: FOREIGN EXCHANGE MARKET:

Distinctive Features–Major Participants–Spot Market –Features–Currency Arbitrage in Spot Market –Speculation in Spot Market–Forward Market–Features– Arbitrage in Forward Market–Forward Market Hedging–Speculation in Forward Market– Swapping of Forward Contracts (Simple Problems).

UNIT–IV: EXCHANGE RATE MECHANISM:

Exchange Rate Quotations–Nominal, Real and Effective Exchange Rates–Determination of Exchange Rate in the Spot Market–Factors–Exchange Rate Determination in Forward Market (Simple Problems).

UNIT–V: INTERNATIONAL FLOW OF FUNDS:

Balance of Payment–Methods of Compilation of Statistics of Balance of Payments–Current Account–Capital Account–Uses of Balance of Payments (Simple Problems).

SUGGESTED READINGS:

1. Fundamentals of International Financial Management:S. Kevin, PHI
2. International Financial Management (Text and Cases): V.K. Bhalla, S. Chand & Company.
3. International Financial Management: Vyuptakesh Sharan, PHI Learning Private Limited
4. Global Financial Management: Joseph Anbarasu, Ane Books PVT. Limited
5. International Financial Management: O.P. Agarwal, Himalaya Publishing House,
6. International Finance: Parul Khanna and RubeenaBajwa, Kalyani Publishers,
7. International Financial Management: P.G. Apte, McGraw-Hill Education.
8. International Financial Management: P.K. Jain**,** Mac-Million.

B.Com Final Year – VI Semester (Accounting)

BC607: Advanced Managerial Accounting

Max. Marks: 80UE+20IA

UNIT-I:STANDARD COSTING AND VARIANCE ANALYSIS:

Standard Costing: Meaning – Importance – Standard Costing and Historical Costing - Steps involved in Standard Costing.Variance Analysis: Material variance - Labour variance - Overhead variance - Sales variance.

UNIT-II: ACTIVITY BASED COSTING:

Introduction- Concept of ABC – Cost drivers- Characteristics of ABC – Allocation of overheads under ABC – Implementation of ABC – Benefits of ABC (Including problems)

UNIT-III: RESPONSIBILITY ACCOUNTING:

Definition – Scope – Responsibility Centers – Expenses Center – Revenue Center – Profit Center – Investment Center – Advantages of Responsibility Accounting – Cost Centers Vs. Responsibility Centers (Theory only).

UNIT-IV: CAPITAL BUDGETING:

Meaning – Nature – Need and Importance – Methods of Capital Budgeting - Traditional Methods: Payback Period - Accounting Rate of Return - Discounted Cash Flow Methods: Net Present Value Method - Internal Rate of Return and Profitability Index Method.(Including problems)

UNIT-V: MANAGEMENT INFORMATION SYSTEM AND REPORTING:

Management Information System (MIS): Introduction – Elements of MIS – Types of MIS – Installing of MIS.Reporting: Meaning and definition – Objectives – Methods of Reporting – Requirements of Good Report – Kinds of Reports.

SUGGESTED READINGS:

1. Management Accounting- Principles & Practice: Sharma RK & Shashi K. Gupta,Kalyani
2. Accounting Theory & Management Accounting: Jain S.P &Narang K.L, Kalyani
3. Advanced Management Accounting: Robert S. Kaplan & Anthony A. Atkinson, Prentice-Hall
4. Management Accounting: Rustagi R.P, Galgotia
5. Managerial Accounting: Ronald W. Hilton, TM

B.Com Final Year – VI Semester (Accounting)

BC608: Advanced Corporate Accounting

Max. Marks: 80UE+20IA

UNIT-I: HOLDING COMPANIES (AS-21):

Nature – Legal requirements – Capital and Revenue Profit/Reserves/Losses – Minority Interest – Cost of Control or Goodwill – Capital Reserve – Inter Company Transactions – Un-realized Profit on Unsold stock - Revaluation of Assets – Interim Dividend by Subsidiary Companies - Debentures in Subsidiary Companies – Consolidated Balance Sheet.(Including problems)

UNIT-II:ELECTRICITY COMPANIES (DOUBLE ACCOUNTING SYSTEM):

Meaning of Double Account System – Final Accounts - Calculation of Reasonable Return and Disposal of Surplus – Replacement of an Asset (Including problems)

UNIT-III: ACCOUNTING FOR PRICE LEVEL CHANGES:

Introduction – History – Limitations – Profit measurement under different systems of accounting – Methods of Accounting for Price Level Changes: Current Purchasing Power (CPP) – Current Cost Accounting (CCA). (Including problems)

UNIT-IV: LEASE ACCOUNTING (AS-19):

Meaning – Terminology – Advantages and Disadvantages – Types: Financial and Operating Lease – Accounting Treatment in the books of both the parties.(Including problems)

UNIT-V: HUMAN RESOURCE ACCOUNTING:

Human Resource Accounting: Definition – Objectives – Assumptions – Advantages and Limitations – Approaches - Human resource accounting in India (Theory only).

SUGGESTED READINGS:
1. Corporate Accounting: R.L.Gupta, M.RadhaSwamy, Sultan Chand
2. Advanced Accounting: M.A.Arulanandam, K.S.Raman, Himalaya
3. Advanced Accounting: Tulsania, TataMcGraw-hill Publishing Company
4. Corporate Accounting: Jain &Narang, KalyaniPublications
5. Advanced Accounting: S.M.Shukla,SahityaBhavan
6. Advanced Accounting (Vol.II): Chandra Bose, PHI
7. Advanced Corporate Accounting: S Goud et al, Himalaya Publishers

Department of Commerce and Business Management,
Kakatiya University, Warangal

B.Com III Year – VI Semester (Computer Applications)

BCO607: WEB TECHNOLOGIES

Max. Marks: 50UE+30P+20IA

UNIT-I: INTRODUCTION:
Art of creating a web site - Markup language (HTML) – Hypertext - Formatting text - Forms & formulating instructions & formulation elements – Commenting code – Anchors - Back grounds – Images - Hyperlinks – Lists –Tables – Frames - Web design principles.

UNIT-II: AN OVER VIEW OF DYNAMIC WEB PAGES & DYNAMIC WEB PAGE:
An over view of dynamic web pages and dynamic web page technologies: Introduction to Dynamic HTML programing -Cascading style sheets(CSS)- Basic syntax and structure -Events handling- Changing Text and Attributes - Dynamically changing style - Text Graphics and placements- Creating multimedia effects with filters and Transactions.

UNIT-III: JAVA SCRIPT:
Introduction - Client side Java script - Server side Java script - Core features - Data types and variables – Operators - Expressions and statements – Functions – Objects – Array - Date and math related objects - Document object model- Event handling.

UNIT-IV:EVENTS AND EVENT HANDLERS:
General information about Events – Event –OnAbort –OnClick - Ondbl click - Ondrag drop – Onerror - Onfocus - Onkey Press – Onkey Up – Onload - Onmouse Down – Onmouse Move - Onmouse Out – Onmouse Over - Onmove - Onrest – Onresize - Onselect - On submit - Onunload.

UNIT-V: EXTENSIBLE MARKUP LANGUAGE (XML):
Introduction- Creating XML Documents- XML style Sheet- Hyperlinksin XML Document Object Model- XML Query Language.

LAB WORK:CREATING A WEBSITE WITH DYNAMIC FUNCTIONALITY USING CLIENT- SIDE AND SERVER SIDE SCRIPTING.

SUGGESTED READINGS:
1. Internet & World Wide Web How to Program: Deitel&Deitel, Pearson.
2. Web programming: Chris Bates.
3. HTML & XML An Introduction NIIT, PHI.
4. HTML for the WWW with XHTML & CSS: Wlizabeth Castro, Pearson
5. Internet and Web Technologies: Raj Kamal, McGraw Hill.
6. Web Technology: A Developer's Perspective:Gopalan&Sivaselvan, PHI.
7. The Complete Reference PHP: S.Holzner, McGrawHill.
8. Internet Technology and Web Page Design: R.Singh&M.Sonia, Kalyani.
9. Web Programming using PHP and MySQL: A.Babu, K.Meena&Sivakumar, HPH.
10. Web Technology and Design by Xavier, New Age International Pub.

B.Com Final Year – VI Semester (Computer Applications)

BCO608: RELATIONAL DATABASE MANAGEMENT SYSTEMS

Max. Marks: 50UE+30P+20IA

UNIT-I: BASIC CONCEPTS:
Database Management System - File based system - Advantages of DBMS over file based system - Database Approach - Logical DBMS Architecture - Three level architecture of DBMS or logical DBMS architecture - Need for three level architecture - Physical DBMS Architecture - Database Administrator (DBA) Functions & Role - Data files indices and Data Dictionary - Types of Database. Relational and ER Models: Data Models - Relational Model – Domains - Tuple and Relation - Super keys - Candidate keys - Primary keys and foreign key for the Relations - Relational Constraints - Domain Constraint - Key Constraint - Integrity Constraint - Update Operations and Dealing with Constraint Violations - Relational Operations - Entity Relationship (ER) Model – Entities – Attributes – Relationships - More about Entities and Relationships - Defining Relationship for College Database - E-R Diagram - Conversion of E-R Diagram to Relational Database.

UNIT-II: DATABASE INTEGRITY AND NORMALISATION:
Relational Database Integrity - The Keys - Referential Integrity - Entity Integrity - Redundancy and Associated Problems – Single Valued Dependencies – Normalisation - Rules of Data Normalisation - The First Normal Form -The Second Normal Form - The Third Normal Form - Boyce Codd Normal Form - Attribute Preservation - Lossless-join Decomposition - Dependency Preservation. File Organisation :Physical Database Design Issues - Storage of Database on Hard Disks - File Organisation and Its Types - Heap files (Unordered files) - Sequential File Organisation - Indexed (Indexed Sequential) File Organisation - Hashed File Organisation - Types of Indexes - Index and Tree Structure - Multi-key File Organisation - Need for Multiple Access Paths - Multi-list File Organisation - Inverted File Organisation.

UNIT-III: STRUCTURES QUERY LANGUAGE (SQL):
Meaning – SQL commands - Data Definition Language - Data Manipulation Language - Data Control Language - Transaction Control Language - Queries using Order by – Where - Group by - Nested Queries. Joins – Views – Sequences - Indexes and Synonyms - Table Handling.

UNIT-IV : TRANSACTIONS AND CONCURRENCY MANAGEMENT:
Transactions - Concurrent Transactions - Locking Protocol - Serialisable Schedules - Locks Two Phase Locking (2PL) - Deadlock and its Prevention - Optimistic Concurrency Control.
Database Recovery and Security: Database Recovery meaning - Kinds of failures - Failure controlling methods - Database errors - Backup & Recovery Techniques - Security & Integrity - Database Security - Authorization.

UNIT-V: DISTRIBUTED AND CLIENT SERVER DATABASES:
Need for Distributed Database Systems - Structure of Distributed Database - Advantages and Disadvantages of DDBMS - Advantages of Data Distribution - Disadvantages of Data Distribution - Data Replication - Data Fragmentation. Client Server Databases: Emergence of Client Server Architecture - Need for Client Server Computing - Structure of Client Server Systems & its advantages.

LAB: SQL QUERIES BASED ON VARIOUS COMMANDS. SUGGESTED READINGS:
1. Database Systems: R.Elmasri& S.B. Navathe, Pearson.
2. Introduction to Database Management System: ISRD Group, McGraw Hill.
3. Database Management System: R.Ramakrishnan&J.Gehrke, McGraw Hill.
4. Modern Database Management: J.A.Hoffer,V.Rames&H.Topi, Pearson.
5. Database System Concepts: Silberschatz, Korth&Sudarshan, McGraw Hill.
6. Simplified Approach to DBMS: ParteekBhaia, Kalyani Publishers.

B.Com Final Year – VI Semester (Taxation)

BC607 - DIRECT TAX – II
Max. Marks: 80UE+20IA

UNIT–I: RETURN OF INCOME AND ASSESSMENT PROCEDURE:
Filing of Return of Income – Return of Loss – Types of Assessment – Income escaping assessment – Times Limit for completion of Assessments and Reassessments – Interest and Penalty for default in filing of Return of Income.

UNIT–II: COLLECTION OF TAX:
Deduction of Tax at Source: Salaries - Interest on Securities – Dividends - Other Interest - Casual Incomes - Payment to Contractors - Payment to Non-Residents - Recovery of Tax – Tax Clearance Certificate – Refund of Tax.

UNIT-III: ADVANCE PAYMENT OF TAX:
Applicability – Computation of Advance Tax u/s 209 – Installments of Advance Tax and Due Dates for Company Assesse and Other Assesses u/s.211 – Interest on deferment of Advance Tax for Corporate Assesses – Credit of Advance Tax (Problems on calculation of Advance Tax applicable to Companies).

UNIT–IV: PENALITIES AND PROSECUTION:
Penalty u/s 271(1)(c) – Levy of penalty – Waiving of penalty – Imposition of Penalty – Time-limit for completion of penalty proceedings – Offences and Prosecutions – Appeals and Revisions.

UNIT–V: INCOME TAX AUTHORITIES:
Various Tax Authorities – Central Board of Direct Taxes-Powers – Director General of Income Tax-Powers – Chief Commissioner of Income Tax-Powers – Assessing Officer: Appointment – Jurisdiction - Powers – Powers relating to Search and Seizure – Settlement Commission.

SUGGESTED READINGS:
i) Income Tax Law and Practice: V.P. Gaur & D.B. Narang, Kalyani Publishers.
ii) Direct Taxes Law & Practice: Dr. Vinod K. Singhania&Dr.KapilSinghania, Taxmann
iii) Income Tax: B.B. Lal, Pearson Education.
iv) Income Tax: M. Jeevarathinam& C. Vijay Vishnu Kumar, SCITECH Publications.
v) Taxation: R.G. Saha, Himalaya Pvt. Ltd.
vi) Income Tax: Johar, McGrawHill Education.

B.Com III Year – VI Semester (Taxation)

BC608: TAX PLANNING & MANAGEMENT

Max. Marks: 80UE+20IA

UNIT–I: INTRODUCTION TO TAX PLANNING:

Meaning of Tax Planning – Tax Avoidance – Tax Evasion – Scope of Tax Planning – Methods of Tax Planning – Tax Management: Meaning – Scope of Tax Management: Under the various heads of Salaries - House Property - Profits and Gains of Business or Profession - Capital Gains.

UNIT–II: TAX PLANNING FOR SALARIES & INCOME FROM HOUSE PROPERTY:

Salaries:Advance of Salary – Commutation of Pension – Change of employment before 5 years service under Recognised Provident Fund – Conversion of unrecognised fund into recognised fund– Tax incidence of Perquisite/allowance – Leave travel concession vs. Leave travel allowance – Gratuity –Savings and Investments – D.A. or D.P. be paid as part of salary – Salary earned outside India – Relief under sec.89 – Repayment of interest on educational Loan – Contribution under Pension Scheme – Medical Expenditure.House Property:Concessional treatment with respect to one self-occupied house – Availing self- occupancy concession for more than one house – Acquisition of house out of own capital vs. Borrowed capital – Acquisition of Self-occupied House out of Borrowed Capital – Deduction of Municipal taxes on Payment basis – Purchasing of House Property in the Name of Spouse having no income or negligible income – Choosing the best option where more than one House is under Self-occupancy.

UNIT–III: TAX PLANNING FOR PROFIT AND GAINS OF BUSINESS OR PROFESSION AND CAPITAL GAINS:

Business:Business Premises - Own or Lease – Depreciation – Expenditure on Scientific Research – Amortisation of certain preliminary expenses – Expenditure on Advertisement – Investment in capital assets – Compensation for breach of an agreement relating to the purchase of an asset – Expenses on borrowing – Tax audit – Compulsory maintenance of accounts – Payment exceeding Rs. 20,000 to be made by Account Payee Cheque. Capital Gains: Consideration to be realised before transfer – Transfer of capital asset at a suitable time – Fair Market Value as on 1st April-1981 to be opted as the cost of acquisition – Concessional Rate of tax – Specific exemption – Forfeiture of exemption – Choice of investment – Sale timings of an asset- held by a minor child – Avoidance of capital gain on the sale of depreciable asset.

UNIT-IV: TAX PLANNING FOR NEW INDUSTRIAL ESTABLISHMENTS AND INVESTMENTS:

Tax planning with reference to New Industrial Establishment – Location - Form - Nature and Capital Structure - Short term loans - Term loans - Public Deposits - Bonus Issues – Dividend.

UNIT-V: TAX PLANNING FOR MANAGERIAL DECISIONS:

Tax considerations arising with regard to specific management decisions: Make/buy - Own/lease - Installment/hire purchase - Retain/replace - Export/local sale - Shut Down/continue Expand/ Contract - Merger and Amalgamations.

SUGGESTED READINGS:

1) Corporate Tax Planning and Management: V.P.Gaur, D.B. Narang& Rajeev Puri, Kalyani.
2) Corporate Tax Planning & Business Tax Procedures: Vinod K. Singania& Monica Singhania, Taxmann.
3) Direct Taxes Law & Practice: Vinod K. Singhania&KapilSinghania, Taxmann
4) Direct Taxes: B.B. Lal, Pearson Publication.

B.A. I - YEAR
(w.e.f. Academic Year 2016-17 Batch)
Semester – I - Discipline Specific Course (Credits – 5)

Course – I : MICRO ECONOMICS – I

Unit I:

Introduction:
Nature, Definition and scope of Economics – Concepts of wealth, welfare, scarcity and growth – Macro Analysis: Static and Dynamic, Normative and Positive – Inductive and Deductive Analysis- Partial and General Equilibrium – Choice as an economic problem.

Unit II:

Consumer Behavior:
Utility Analysis – Cardinal and Ordinal approaches – Law of Diminishing Marginal Utility – Law of Equi-marginal utility, indifference curve, properties of indifference curves – Price (Budget) line – Equilibrium of the Consumer with the help of indifference curves – Price, Income and Substitution effect- Consumer Surplus.

Unit III:

Demand Analysis:
Concept of Demand- Law of Demand- Determinants of demand – Types of Demand – Demand Function – Elasticity of Demand – Price, Income and Cross elasticity of demand – Derivation of Demand Curve - Measures of Elasticity of Demand. Demand Forecast-Meaning- Factors influencing demand forecast.

Unit IV:

Supply Analysis:
Concept of Supply – Law of Supply – Determinants of Supply – Supply Function – Elasticity of Supply – Derivation of Supply Curve – Supply Curve in Perfect and Imperfect Markets – Market Equilibrium.

Unit V:

Production Analysis:
Concept of Production – Production Function –Linear and Non-linear Production Function – Isoquant – Law of Variable Proportion – Isocost Curve –Producer Equilibrium- Law of Returns to Scale – Expansion Path – Internal and External Economies.

References:

Reynold, L.G.   : Micro Economic Analysis   and Policy, University Book Stall.
Koutsoyiannis, A   : Modern Micro Economic   Theory   - Macmillian Co, New York.
Baumol, J, William   : Economic Theory and Operations analysis, Prentice Hall India
JEA   : Readings in the theory of Price. Creyeant and Cohen: Theory of the firm
Ahuja, H.L.   : Advanced Economic Theory: Micro Economic Analysis, S. Chand & Co.,
Stigler,G.J   : The Price Theory OUP, Henderson.
Handerson & Quandt   : Micro Economic Theory and Applications.
Hal R Varian,   :Micro Economic Analysis , W W Norton and Comp, Halderson and
Layard and Walters   : Micro Economic Theory, McGraw Hill
Whinston & J.R.Green : Micro Economic Theory.

B.A. I- YEAR
Semester – II : Discipline Specific Course (Credits – 5)

Course – II : MICRO ECONOMICS - II

Unit I:

Cost and Revenue Analysis:
Concepts of Costs and Revenue and their interrelation – Cost Analysis: Total, Average and Marginal Cost Curves in Short Run and Long Run – Revenue Analysis: Total, Average and Marginal Revenue Curves – Relationship among Average and Marginal Revenue – Equilibrium of the firm; Break-even Analysis.

Unit II:

Market Structure Analysis – I:
Concept of Firm, Industry and Market- Classification of Markets – Perfect Competition: Characteristics- Price Determination - Equilibrium of the Firm and Industry during the Short-Run and Long-Run – Monopoly: Concept, Characteristics – Equilibrium of the Firm – Price Discrimination.

Unit III:
Market Structure Analysis – II:
Monopolistic Competition – Concept, Characteristics – Equilibrium of the Firm – Selling Costs – Duopoly: Concept and Characteristics- Cournot Model – Oligopoly: Concept and Characteristics – Kinky Demand Curve – Price Rigidity.

Unit IV:
Marginal Productivity Theory – I:
Concept of Marginal Productivity – Marginal Physical Product – Marginal Revenue Product – Marginal Value of Product – Factor Pricing: Rent: Recordian Theory of Rent - Quasi Rent Theory – Modern Theory of Rent.

Unit V:
Marginal Productivity Theory – II:
Wage – Wage Determination – Collective Bargaining – Minimum Wage – Capital - Determination of interest: Classical and Neo-Classical Theory of Interest – Profit: Theory of Uncertainty – Risk Theory – Innovative Theory.

References:

Reynold, L.G.   : Micro Economic Analysis   and Policy, University Book Stall.
Koutsoyiannis, A   : Modern Micro Economic   Theory - Macmillian Co, New York.
Baumol, J, William   : Economic Theory and Operations analysis, Prentice Hall India
JEA   : Readings in the theory of Price. Creyeant and Cohen: Theory of the firm
Ahuja, H.L.   : Advanced Economic Theory: Micro Economic Analysis, S. Chand & Co.,
Stigler,G.J   : The Price Theory OUP, Henderson.
Handerson & Quandt   : Micro Economic Theory and Applications.
Hal R Varian,   : Micro Economic Analysis , W W Norton and Comp, Halderson and
Layard and Walters   : Micro Economic Theory, McGraw Hill
Whinston & J.R.Green   : Micro Economic Theory.
Weintraub. E.R   : General Equilibrium Theory, Macmillan, London Hildenbrand and
Kirman, A.P.(1976)   : Introduction to Equilibrium Analysis.

B.A. II- YEAR

Semester – III: Skill Enhancement Course (SEC) (Credits – 2)

Course – III : Quantitative Methods-I

Unit – I:

Statistics:

Definition ,Concepts, importance of Statistics in Economics –Population and Sample, Collection of Data – Primary and secondary data- Methods of Collecting Data – Classification and Tabulation of data – Frequency tables – Diagrammatic representation (bar , pie diagrams, histogram)

Unit- II:

Measures of Central Tendency & Dispersion:

Arithmetic mean, median, mode, geometric mean and harmonic mean – merits & demerits – properties of good average: measures of dispersion- range, quartile deviation, mean deviation, standard deviation- merits & demerits- coefficient of variation & variance.

References:

1. Data base of Indian Economy – Published by Statistical Publishing Society vol. I, II and III
2. D.N. Elhance – "Statistics"
3. B.N.Astana : Elements of Statistics
4. C.B.Gupta : An Introduction to Statistical Methods
5. Telugu Akademy's Publiscation on Economic Statistics
6. S.P.Gupta : Statistical Methods.

B.A. II -YEAR
Semester –III : Discipline Specific Course (Credits – 5)
Course – IV : MACRO ECONOMICS

Unit I:

Introduction:
Meaning, Nature, scope and importance of Macro Economics – Concept of circular flow of Income – National Income: Concept and Components – GNP and NNP, GDP, Personal Income (PI), Disposal Income, Per Capita Income (PCI), Real National Income (RNI) – Methods of Estimation – Importance of and difficulties in the estimation of National Income.

Unit II:

Theory of Output and Employment:
Classical Theory of Employment – Say's Law of Markets – Wage-cut Policy – Keynesian Theory of Employment : Effective Demand, Aggregate Demand, Aggregate Supply – Consumption Function – APC, MPC, Factors influencing consumption pattern – Investment Function: MEC and Rate of Interest – Concept of Multiplier and Accelerator.

Unit III:

Money and Theories of Money:
Meaning, Functions and Classification – Money Supply – Measures of Money Supply – M1, M2, M3, M4, Theories of Money – Fishers' Quantity Theory of Money – Cambridge Approach (Marshall, Pigou, Robertson) – Keynes Theory of Money.

Unit IV:

Trade Cycles and Inflation:
Trade Cycles – Meaning, Causes and Consequences – Stages of Trade Cycle – Inflation: Definition – Types of Inflation – Causes and Effects of Inflation – Measures to control Inflation – Concept of Deflation.

Unit V:

Banking and Stock Market:
 Commercial Bank – Functions – Process of Credit Creation – Concept of Non-banking Finance Companies (NBFCs) – RBI: Concept – Functions – Credit Control Measures – Concepts of Shares and Debentures - Stock Market – Functions and Importance of Stock Market- Primary and Secondary Markets – SEBI.

References:
1. Gardener Ackely, (1978)   : Macro Economics - Theory & Policy
2. Branson, W.A (1989)   : Macro Economic Theory and Policy
3. Jha, R (1991)   : Contemporary Macro Economic Theory and Policy
4. Jhingan, M.L.(1999)   : Macro Economics
5. Surrey MJC, (1976)   : Macro Economic Theorems, Oxford
6. Rao, V.K.R.V (1983)   : India's National Income, 1950 to1980, New Delhi.
7. Keynes, J.M (1936)   : General Theory of Employment, Interest and Money
8. Gupta, S.B.   : Monetary Theory.
9. Edward Shepiro   : Macro Economic Analysis, Galgothi Publication, New Delhi.
10. David Laidler   : Demand for money, Mac Millian
11. Hicks, Mukerjie & Ghosh Social Frame work of Indian Economy.

B.A. II - YEAR

SEMESTER – IV: Skill Enhancement Course (SEC) (Credits – 2)

Course – V : Quantitative Methods-II

Unit- I:

Correlation & Regression:

Correlation Analysis: Concept of Correlation – Types of Correlation - Karl Pearson's correlation coefficient – Rank correlation – Regression Analysis: Concept of Regression – Regression Lines and Regression Equations.

Unit-II:

Index numbers:

Concept of Index Number and Uses – Classification of Index Numbers – Methods of constructing index numbers: Laspayer's, Pasche's & Fisher's ideal index numbers- Cost of living index - Time series analysis: Components- methods of measurement of trends: graphic, semi averages, moving averages, least square method

.
References:

1. Data base of Indian Economy – Published by Statistical Publishing Society
2. D.N. Elhance – "Statistics"
3. B.N.Astana : Elements of Statistics
4. C.B.Gupta : An Introduction to Statistical Methods
5. Telugu Akademy's Publiscation on Economic Statistics
6. S.P.Gupta : Statistical Methods.

B.A. II - YEAR
Semester –IV : Discipline Specific Course (Credits – 5)
Course – VI : Public Finance and International Trade

Unit- I:
PUBLIC FINANCE:
Meaning and Scope of Public Finance: Distinction between Public and Private Finance, Principle of Maximum Social Advantage – Public Good Vs Private Good

Unit- II:
Public Revenue:
Public revenue: Sources and Classification – Direct and Indirect Taxes, Progressive, Proportional and Regressive Taxes – Cannons of taxation – Characteristics of Good Tax system- Impact and Incidence of Taxation – Effects of Taxation – Goods and Service Tax(GST).

Unit- III:
Public Expenditure and Public Debt:
Public Expenditure – Classification and Principles – Determinants of Public Expenditure – Wagner's Law – Peacock-wise men hypothesis – effects of public Expenditure – Concepts of Public Debt – Nature, Classification and Sources of Public Debt – Effects of Public Debt – Methods of Redemption.

Unit- IV:
International Trade:
Introduction – Role of International Trade in Economic Development – Gains from Trade – Concept of terms of Trade – Factors affecting the Terms of Trade – Tariffs – Quotas – Balance of Trade – Exports and Imports in India.

Unit -V:
Balance of Payments:
Concept – Components – Determinants of Balance of Payment – Disequilibrium in Balance of payments – Measures to correct the disequilibrium – Recent Trends in Balance of Payment in India – Exchange Rates – Concept – Types.

References:

1. R.A. Musgrave   : Theory of Public Finance
2. Musgrave & Musgrage   : Public Finance in theory and Practice
3. Houghton   : Public Finance
4. Hugh Dalton   : Principles of Public Finance
5. B.P. Tyagi   : Public Finance.
6. R.N. Bhargav   : Indian Public Finance.
7. R. Jha   : Public Finance
8. R.K. Singh   : Public Finance
9. H.S. Agarwal   : Public Finance
10. R.K. Choudhry   : Public Finance & Fiscal Policy.
1. Bhagavati, J (Ed)   : International Trade Selected Readings,
                              Cambridge University, Press, Massachusetts.
2. Kindleberger,   : International Economics, R.D Irwin, Home Wood
3. Soderston, B.O.   : International Economics,   the Macmillan Press Ltd., London.
4. Brahmananda, P.R.   : The IMF Loan and India's Economic Future
5. Man Mohan Singh   :   India's Export Trends and the prospects for self-sustained
                              Growth, Oxford University Press, New Delhi.

B.A. III - YEAR
Semester – V: Skill Enhancement Course, (Credits – 2)

Course – VII: Basics of Computers – I

Unit I:

Fundamentals of Computers:

Fundamentals of Computers – Components – Input-Output Devices – Central Processing Unit (CPU) – Types of Memory: RAM, ROM – Storage Devices – Software and Hardware – Operating System – Windows User Interface – Importance of Computers in Economic Analysis.

Unit II:

Word Processing with MS-Word:

Starting MS-Word – Main Menu – Text Manipulations: Editing, Formatting, Copy, Cut and Paste – Working with Tables – Checking Spelling and Grammar – Saving and Retrieving Documents – Printing a Document.

References:

1. Working with M S Office by Ram Mansfield, TMH
2. Working with M S Office SPSS user manual
3. Ravi Kalkota & Andrew B.Whiston :   Frontiers of Electronic Commerce, Addison Wesley, Mardesty, 1996.
4. Daniel Miroli   :   Web Commerce Technology, Handbook
5. Emma miroli   :   McGraw hill, New Delhi, 1999

U.G. ECONOMICS SYLLUBUS (Under CBCS)
B.A. III - Year
SEMESTER - V: Discipline Specific Course (Credits - 4)

Course – VIII - Indian Economy

Unit – I:

Structure and Planning of the Indian Economy;
Concepts of Economic growth and Economic development – Measures of economic development: GNP, PCI, PQLI and HDI – Demographic features: Population- size-growth and composition – Occupational distribution – Population policy – Planning: Concept and Objectives of Five year Plan – Current Five Year Plan (12th).

Unit – II:

National Income, Poverty and Unemployment:
National Income in India - Trends and Composition – Income inequalities – magnitude, causes, consequences and remedial measures, Poverty – Concept – trends – causes – consequences; Unemployment – types –trends causes and consequences – Poverty Alleviation and Employment generation Programmes in India.

Unit III:

Indian Agriculture and Industry:
Nature and importance – Trends in agricultural production and Productivity –Factors determining productivity – Land Reforms – Green Revolution – Rural Credit – Micro Finance –Marketing and Pricing policy – Crop Insurance –Agricultural infrastructure and Food Security.

Unit – IV:

Industrial and Service Sector:
Structure - Growth – Importance and Problems of Indian Industry – Industrial Policies – 1948, 1956 and 1991 – NITI Aayog – Service Sector: Concept – Components – Infrastructural Development: Transport, Banking, Insurance, Information Technology and Communication – FDI.

References:

1. Dhingara, I.C – "Indian Economy", Sultan Chand.
2. Ruddar Dutt and K.P.M Sundaram – "Indian Economy", S.Chand & Co
3. G.M.Meier – "Leading Issues in Economic Development", Oxford University Press, New Yark, 3/e.
4. M.P. Todaro – "Economic Development", Longman, London, 6/e,1996.
5. Reserve Bank of India – Handbook of Statistics on Indian Economy (Latest).
6. S.K.Mishra & V.K.Puri – "Indian Economy", Himalaya Publishing House.
7. Indian Economy – Telugu Academy.

Paper- I- Indian Economy

Unit – I:

Structure and Planning of the Indian Economy;
Concepts of Economic growth and Economic development – Measures of economic development: GNP, PCI, PQLI and HDI – Demographic features: Population- size-growth and composition – Occupational distribution – Population policy – Planning: Concept and Objectives of Five year Plan – Current Five Year Plan (12th).

Unit – II:

National Income, Poverty and Unemployment:
National Income in India - Trends and Composition – Income inequalities – magnitude, causes, consequences and remedial measures, Poverty – Concept – trends – causes – consequences; Unemployment – types –trends causes and consequences – Poverty Alleviation and Employment generation Programmes in India.

Unit III:

Indian Agriculture and Industry:
Nature and importance – Trends in agricultural production and Productivity –Factors determining productivity – Land Reforms – Green Revolution – Rural Credit – Micro Finance –Marketing and Pricing policy – Crop Insurance –Agricultural infrastructure and Food Security.

Unit – IV:

Industrial and Service Sector:
Structure - Growth – Importance and Problems of Indian Industry – Industrial Policies – 1948, 1956 and 1991 – NITI Aayog – Service Sector: Concept – Components – Infrastructural Development: Transport, Banking, Insurance, Information Technology and Communication – FDI.

References:

8. Dhingara, I.C – "Indian Economy", Sultan Chand.
9. Ruddar Dutt and K.P.M Sundaram – "Indian Economy", S.Chand & Co
10. G.M.Meier – "Leading Issues in Economic Development", Oxford University Press, New Yark, 3/e.
11. M.P. Todaro – "Economic Development", Longman, London, 6/e,1996.
12. Reserve Bank of India – Handbook of Statistics on Indian Economy (Latest).
13. S.K.Mishra & V.K.Puri – "Indian Economy", Himalaya Publishing House.
14. Indian Economy – Telugu Academy.

B.A. III - Year

Semester – V: Discipline Specific Elective (Credits-4)

Course: IX (a) Economics of Development & Infrastructure

Unit- I:

Economic Growth and Development: Concepts of Growth and Development -Measuring of Growth and Development –- factors affecting Economic Growth – PCI, PQLI, HDI, WDI other indices – Components of Human Development.

Unit- II:

Factors of Economic Development: Characteristics of under Developing economies – factors deterring of Economic Development – Population and Economic Development – Demography and Transition – Human Recourse Development (HRD) and Economic Development.

Unit- III :

Theories of Economic Development: Concepts of balanced and unbalanced growth – Theories of Nurkse and Hirschman – Lewis model of unlimited supply of labour - Schumpeter theory of innovations – choice of techniques - Role of technology in Economic Development. ,

Unit-IV:

Infrastructure and Economic Development : Concept of Infrastructure – Infrastructure as a public good - Social Infrastructure – Education and Health – Physical Infrastructure - Energy and Transportation – characteristic of Public utilities – Role of Social and Physical Infrastructure in Economic Development.

Refeences:

1. Benjamin Higgins : Leading Issues in Economic Development, Oxford University Press, New York.
2. Adleman, I : Theories of Economic Growth   and Development, Stanford University   Press, Stanford.
3. Chakravarthi,S : Development Planning, The   Indian Experience, Clarenden Press, Oxford.

4. Brahmananda, P.R &
    Vakil, C.V. : Planning for an Expanding Economy, Vora & Co, Bombay.
5. A.K.Sen : Choice of Techniques, Basil Blackwell, London.
6. Ghosh & Ghosh : Planning Models & Techniques & Indian   Planning.
7.   -- : Human Development Report.
8 Gerald Meir : Leading Issues in Economic Development.
10. M.P. Todaro : Economic Development in the third world.
11. Misra & Puri : Economic Development, Himalaya Publishing, House.

U.G. Economics Syllabus (Under CBCS)
B.A. III - Year
Semester – V: Discipline Specific Elective (Credits-4)

Course- IX (b) Financial Institutions and Markets

Unit – I:

Financial System an Introduction:
Financial System: Concept, Nature – Functions of the Financial System – The Structure of the Financial System – Financial market Development: Indicators – Equilibrium in Financial markets – Financial System and Economic Development.

Unit – II:

Banking in India:
Commercial Banks: Types Functions – Process of Credit Creation – Functions of Central Bank - The Aims and objectives of the Monterrey Policy – Definition and types of Non-bank Financial Institutions: - Financial Sector Reforms in India.

Unit – III:

Financial Markets in India:
Money Market: Concept, Components and Function – Capital Market: Concept, Components and Functions – Call Money Market – Treasury Bill Market – Commercial Bill Market – Commercial Paper and Certificate of Deposits – discount market – Stock exchange: - SEBI – Functions.

Unit – IV:

International Financial Markets:
Introduction – Foreign Exchange Market – Exchange Rates – Devaluation, and Depreciation – International Liquidity – Lending Operations of IMF World Bank - IDA and IFC – ADB – BRICS – Foreign Exchange Market in India.

References:

Bhole, L.M. (1999), Financial Institutions and Markets, Tata McGraw Hill Company Ltd., New Delhi.
Bhole, L.M. (2000), Indian Financial System, Chugh Publications, Allahabad.
Edminster, R.O. (1986), Financial Institutions, Markets and Management, McGraw Hill, New York.
Goldsmith, R.W. (1969), Financial Structure and Development, Yale, London.
Johnson, H.J (1996), Financial Institutions and Markets, Tata McGraw Hill, New Delhi.
Khan, M.Y. (1996) Indian Financial System, Tata Mc Graw Hill, New Delhi.
Robinson, R.I and D. Wightman (1981), Financial Markets, McGraw Hill, London.
Chandra, P. (1997), Financial Markets, (4th Edition), Tata McGraw Hill, New Delhi.
Machiraju, H.R. (1997), International Financial Markets in India, Wheeler Publishing, Allahbad.
Rangarajan, C. (1999), Indian Economics: Essays on Money and Finance, UBS Publication, New Delhi.

U.G. Economics Syllabus (Under CBCS)
B.A. III Year
Semester – V: Discipline Specific Elective (Credits-4)

Course- IX (C) Economics of Rural Development

Unit - I:

Rural Development: Concept – Scope - Approaches – Gandhian and Functionalist Approaches. - Rural Social Structure in India - Co-operative farming - Green Revolution and its impact - Changing pattern of agrarian relations.

Unit - II :

Rural Financial Structure - Rural Money Markets - Role of Co-operatives - Commercial Banks and RRBs - Rural Indebtedness - Financial Sector Reforms.

Unit - III:

Rural Development under Five Year Plans – Role of Agriculture and Allied activities in Rural Development – Rural Marketing – Voluntary Agencies – Concept of Poverty – Poverty alleviation programes.

Unit- IV:

Income and Employment in Rural Areas – concept of unemployment – income and Generation Programmes - IRDP- DWCRA- NREP- TRYSEM, etc., - problems of female and child labour - Globalization and Rural Development.

Reference:

1. P.C. Joshi   : Land Reforms in India
2. CH. Hanmantha Rao   : Technological Changes and Distribution of Gains in Indian Agriculture.
3. K. Venkat Reddy   : Rural Development in India
4. I. Sathya Sundaram   : Rural Development in India
5. NIRD   : Rural Development in India: Some Facts
6. Robert Chambers   : Rural Development
7. Sarthar Aziz   : Rural Development, China, India & Bangladesh.
8. N.L. Murthy &
   K.V. Narayana   : Rural Economy of India
9. A.R. Desai   : Rural Sociology.
10. Adbul Aziz   : Unionisation of Agricultural Labourers - A Proposal.

Course – X - Basics of Computers – II

Unit- I:

Spreadsheets with MS-Excel:

Opening Menu of MS-Excel – Rows and Columns of Spread Sheet – Types of Data – Entering Data – Formatting Data – Data Analysis with Excel: Sorting – Formulas and Functions – Basic Statistical Functions – Statistical and Business Charts – Saving, Retrieving and printing.

Unit -II:

MS-Power Point and Basics of Internet:

Opening Menu – Selecting a Slide – Inserting Objects into the Slide – Text, Graphical Shapes - Setting Attributes – Setting Slide Show – Presenters Pen – Saving, Retrieving and printing Power Point files – Internet Basics – Computer Networking – World Wide Web – Getting connected to Internet – Wireless Internet –E-mail: Creating an Account – Sending and Receiving Mails – Attaching and Downloading Documents – Searching Documents.

References:

1. Working with M S Office by Ram Mansfield, TMH
2. Working with M S Office SPSS user manual
3. Ravi Kalkota & Andrew B.Whiston :   Frontiers of Electronic Commerce, Addison Wesley, Mardesty, 1996.
4. Daniel Miroli   :   Web Commerce Technology, Handbook
5. Emma miroli   :   McGraw hill, New Delhi, 1999

B.A. III - Year

Semester – VI: Discipline Specific Elective (Credits-4)

Course XI - Telangana Economy

Unit – I:

Telangana Economy: Human Resources:
Economic History of Telangana – Demographic Features of Telangana – Occupational Distibuti8on of Population in Telangana – Sect oral Distribution of Population – Migration (Social Infrastructural Development: Education and Health) Regional Imbalances : Causes, Consequences & Remedial measures.

Unit-II:

Gross Domestic Product, Product and Unemployment:
Trends in Gross State Domestic Product and per capita Income in Telangana – Sect oral Contribution to Gross State Domestic Product - Inequalities in the Distribution of Income and Wealth – Poverty in Telangana Trends, Causes & Consequences – Unemployment in the Telangana: Trends, Causes & Consequences – Poverty Alleviation & Employment Generation Programmes in Telangana.

Unit-III:

Agricultural Sector:
Growth of Agriculture in Telangana Economy – Trends in Agricultural production and Productivity – Determinants of Agricultural Productivity – Cropping Pattern – Agrarian Structure and Land reforms – Irrigation: Sources and Trends - Mission Kakatiya – Agricultural Credit and Rural Indebtedness – Agricultural Marketing – Food Security in Telangana.

Unit – IV:

Industrial & Service:
Structure of Telangana Industry – Growth and Pattern of Industrial Development to Telangana – Industrial policy of Telangana – Special Economic Zones (SEZ) – Role of Small Scale Industries in Telangana Economy – Problems & remedial Measures of Small Scale Industries: Issue of Sickness – Industrial Finance in Telangana – Service Sector: Infrastructure : Transport, Energy, Communication & I.T.

U.G. Economics Syllabus (Under CBCS)
B.A. III - Year

Semester – VI: Open Elective Course (Credits-4)

Paper-II- Telangana Economy

Unit – I:

Telangana Economy: Human Resources:
Economic History of Telangana – Demographic Features of Telangana – Occupational Distibuti8on of Population in Telangana – Sect oral Distribution of Population – Migration (Social Infrastructural Development: Education and Health) Regional Imbalances : Causes, Consequences & Remedial measures.

Unit-II:

Gross Domestic Product, Product and Unemployment:
Trends in Gross State Domestic Product and per capita Income in Telangana – Sect oral Contribution to Gross State Domestic Product - Inequalities in the Distribution of Income and Wealth – Poverty in Telangana Trends, Causes & Consequences – Unemployment in the Telangana: Trends, Causes & Consequences – Poverty Alleviation & Employment Generation Programmes in Telangana.

Unit-III:

Agricultural Sector:
Growth of Agriculture in Telangana Economy – Trends in Agricultural production and Productivity – Determinants of Agricultural Productivity – Cropping Pattern – Agrarian Structure and Land reforms – Irrigation: Sources and Trends - Mission Kakatiya – Agricultural Credit and Rural Indebtedness – Agricultural Marketing – Food Security in Telangana.

Unit – IV:

Industrial & Service:
Structure of Telangana Industry – Growth and Pattern of Industrial Development to Telangana – Industrial policy of Telangana – Special Economic Zones (SEZ) – Role of Small Scale Industries in Telangana Economy – Problems & remedial Measures of Small Scale Industries: Issue of Sickness – Industrial Finance in Telangana – Service Sector: Infrastructure : Transport, Energy, Communication & I.T.

U.G. Economics Syllabus (Under CBCS)
B.A.III - Year
Semester – VI: Discipline Specific Elective (Credits – 4)

Course – XII (a) - Economics of Environment

UNIT - I :

Definition,   Concept of Ecology and Environment   -   Micro Economic Theory of Environment - The Pricing of the Environmental variables - The theory of externality and public good-   Material   Balance approach.

UNIT - II :

Problems of resource allocation - Economics of Exhaustible, Non-exhaustible resources - Theory of Natural Resources depletion - Conservation   of Resources - Implications of Ecological imbalances.

UNIT - III :

Impact of Environment on GNP - limits to Growth - Sustainable Development - Modern and Neo-Classical Views of Sustainable Development -   Development Vs Sustainable Development.

UNIT - IV :

Industrial and Agricultural Technology - its impact on environment – Different types of pollution- causes of Environmental degradation- Valuation of Environment degradation – Direct & Indirect methods – Environmental policy and protection of eco-system- Global environmental Issues.

References:

Rajyalaxmi   :   Environmental Economics
Karpagam.M   :   Environmental Economics
U. Shankar   :   Environmental Economics
Baumol, W.J   :   Economics and Environmental Policy and Quality of life - Prentice Hall, 1979.
     "   :   Theory of Environmental Policy - Cambridge University Press,
G.M. Heal   :   The Economic Theory of exhaustible resources Cambridge University Press, 1989.
Pearse, D.   :   Economics of Environment: London, 1977
Freedom, A.M :   The Benefits of Environment improvement, John Hopkins University Press, 1979.
W.M. Adams   :   Green Development - Rutledge.
D. Reid   :   Sustainable Development, Earth scan Turner, Pearce & Bateman
Bateman   :   Environmental Economics, Harvester - Wheat sheaf
Y.G. Joshi &
D.K. Verma   : Social Environment for Sustainable Development, Rawat Publications.
Vidyanath, V. :   Environment, Energy and Health
Dasgupta, P.S &
K.G. Maler   :   Environmental and Emerging development Issues Cambridge University Press.

U.G. Economics Syllabus (Under CBCS)
B.A. III - Year
Semester – VI: Discipline Specific Elective (Credits-4)

Course: XII (b) Demography

Unit-I :

Meaning and scope of demography - components of population-growth and their interdependence-Theories of population– Malthus and Optimum theory of population - Theory of demographic transition – Population and Development.

Unit-II:

Population trends in the twentieth century - population Explosion – International aspects of population growth and spatial distribution- age and sex Structure-– Social economic implications.

Unit-III:

Fertility – Trends in fertility rates in developed and less developed countries- Factors affecting fertility – Nuptiality – concept of marital status - synthetic cohort methods - Mortality rates in more and less developed countries- concepts of stable population- Methods of population projection.

Unit-IV:

Migration: Factors affecting migration – Urbanization – trends in developing countries – study of census in India- Trends in the rate of growth of Indian Population –Population policy –Family Welfare- Family Planning strategies in India- New Population policy in India.

References:

1. S.N.Agarwal : India's population problem – Tata Mc Graw –Hill Co. Bombay.
2. Ahisha Bose: India's Basic Demographic statistics-B.R Publishing corporation, New-Delhi.
3. P.K. Chowbey: Population policy in India – Kanishka Publications, New Delhi.
4. S.C Gulati: Fertility in India an Econometric study of a metropolis-Sage, New Delhi.
5. K.Srinivsan: Basic Demographic techniques and applications.-Sage, New Delhi
6. D.J. Bogue: Principles of Demography-John Wiley, New York.
7. C.M. Chiang: Life tables and Mortality Analysis.-WHO, Geneva.
8. CEHI,   Dharmakumar (ed) Vol.2
9. Praveen Visaria, Population studies.
10. Dharma Kumar, Land and caste in south India.

U.G. ECONOMICS SYLLUBUS (Under CBCS)

B.A. III - Year
Semester - VI: Discipline Specific Elective (Credits – 4)

Course – XII (C) Economics of Agriculture

UNIT - I   Agricultural Development Meaning. Nature and Scope Sustainable Agricultural Development – Interdependence between Agriculture and Industry.

UNIT - II   Agrarian Structure Land Reforms – Abolition of Intermediaries – Land Ceiling Agricultural Wages and Gender Discrimination – The Question of Landless labour.

UNIT - III   Agricultural Production and Productivity - Production function analysis in agriculture - Technological changes – Green Revelation Agrarian Crisis – Formers Suicides.

UNIT - IV   Diversification of Agricultural Economic Activities - Modernization of Agriculture and allied activities- Problems of Agricultural Marketing Globalization Indian Agriculture.

References:-

1. G. Blyn   :   Agricultural trends in India
2. K. Bhardwaj   :   Production conditions in Indian Agriculture
3. A. Mitra   :   Terms of Trade & Class relations.
4. A. Rudra   :   Relative rates of growth; Agriculture & Industry
5. Pramit Chaudhari (Ed)   :   Readings in Agricultural Development
6. P.C. Joshi   :   Land Reforms
7. S. Chakravarthy   :   Alternative Strategies for Agriculture.
8. Kotovsky   :   Agrarian reforms in India.
9. R.P. Dutt   :   India To-day.
10. Mellor   :   Agriculture in Economic Development

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<u>**Syllabus w.e.f. 2016-2017**</u>

B.A. Public Administration

B.A. I YEAR
Paper – I : Semester-I: Basics of Public Administration

Unit- 1: Introduction
    i.   Nature of Public Administration
    ii.   Meaning and Importance of Public Administration
    iii..   State and Evolution of Public Administration

Unit-2: Relationship with other Social Sciences
    i.   Law
    ii.   Political Science
    iii.   Economics

Unit-3: Oriental and Classical Approaches
    i.   Oriental Approach -Kautilya
    ii.   Classical Approach: Henri Fayol, Luther Gulick and Lyndall Urwick
    iii.   Scientific Management Approach: F.W.Taylor
    iv.   Bureaucratic Approach: Max Weber and Karl Marx

Unit-4: Human Relations and Behavioural Approaches
    i.   Human Relations Approach –Elton Mayo
    ii.   Behavioural Approach: Herbert A. Simon
    iii.   Socio- Psychological Approach: Abraham Maslow; Mc Gregor, Rensis Likert

Unit-5: Ecological and Social Justice Approaches
    i.   Administrative Ecology: F.W.Riggs
    ii.   Social Justice Approach –B.R.Ambedkar
    iii.   Jyothirao Pule

Suggested Readings:
1.   M. P. Sharma and Sadhana Public Administration
2.   Avasthi and Maheswari, Public Administration
3.   Mohit Bhattacharya, New Horizons of Public Administration
4.   D. Ravindra Prasad, V.S. Prasad, P. Satyanarayana, Y. Pardhasaradhi, Administrative Thinkers.
5.   O.P. Srivastava, Public Administration Volume-I & II.
6.   Public Administration, Concepts, Theories and Principles,Telugu Academy.

Public Administration

B.A. I YEAR
Paper – II : <u>Semester-II: Development Dynamics and Emerging Trends</u>

Unit- 1: Comparative & Development Administration
    i.   Comparative Administration
    ii.   Development Administration
    iii.   Changing Dynamics of Development Administration

Unit-2: Emerging Trends
    i.   New Public Administration – Minnowbrook-I
    ii.   New Public Administration – Minnowbrook-II
    iii.   New Public Administration – Minnowbrook-III

Unit-3: Market Theories
    i.   Public Choice Approach
    ii.   New Public Management

Unit-4: Role of Public Services and Governance
    i.   Public Policy and Governance
    ii.   Role of Public Services in the Emergence and Development of New State of Telangana
    iii.   Issues in Governance

Unit-5: Contemporary Developments and Public Administration
    i.   Globalization and Public Administration
    ii.   Present Status of Public Administration in the context of Globalization
    iii.   Recent trends in Public Administration

Suggested Readings:
1.   Avasthi & Maheshwari "Public Administration", Laxminarain. Agarwal Educational Publishers, Agra
2.   Mohit Bhattacharya "New Horizons of Public Administration"Jawahar Publishers,New Delhi
3.   Rumki Basu "Public Administration Concepts and Theories" Sterling Publishers, New Delhi
4.   M.Laxmikanth "Public Administration" Tata Mc Graw Hills Publishers, New Delhi
5.   Prabhutva Paalana Sidhantalu Bhavanalu Telugu Academy Publication, Hyderabad
6.   Bidyut Chakrabarty, Prakash Chand "Public Administration in a Globalizing World: Theories and Practices", Sage Publications
7.   Ferrel Heady "Public Administration-A Comparative Perspective" CRC Press

Public Administration

B.A. II YEAR
Paper – III : Semester-III: Union Administration

Unit- 5: Historical Background
    i.   Evolution of Indian Administration
    ii.   Indian Administration after Independence: Continuity and Change
    iii.   Indian Constitutional Moorings and Administration.

Unit- 2: Union Administration: Structure and Processes
    i.   Political Executive at Central Level
    ii.   i. President ii. Prime Minister iii. Council of Ministers
    iii.   Central Secretariat and other Offices

Unit-3: Center-State Relations
    i.   Centre-State Administrative Relations
    ii.   Central Personnel Agencies-All India Services
    iii.   Finance Commission

Unit-4: Constitutional and Other National Bodies
    i.   Union Public Service Commission
    ii.   Election Commission and Comptroller and Auditor General of India (C&AG)
    iii.   NITI Aayog

Unit-5: Public Enterprises in India
    i.   Significance of Public Enterprises
    ii.   Forms of Public Enterprises - Department, Corporation, Company
    iii.   Performance and Disinvestment

Suggested Readings:
1.   S.R Maheshwari "Indian Administration" Orient Black Swan Publishers, New Delhi
2.   Ramesh K.Arora & Rajni Goyal "Indian Public Administration" New Age International Publishers, New Delhi
3.   M.Laxmikanth "Public Administration" Tata Mc Graw Hills Publishers, New Delhi
4.   Bharata Desha Paalana Telugu Academy Publication, Hyderabad
5.   Avasthi A. 1980. Central Administration: Tata Mc Graw Hill: New Delhi.
6.   Basu, D. D. 2004. Introduction to the Constitution of India; Prentice Hall: New Delhi

Public Administration

B.A. II YEAR
Paper – IV : Semester-IV: State Administration and Emerging Issues

Unit-1: State Administration: Structure and Processes
 i. Administrative History of Telangana
 ii. Political Executive at State Level, Governor & Chief Minister

Unit-2: State Administrative Mechanisms
 i. State Secretariat & Directorates
 ii. Local Governance & District Administration in Telangana

Unit- 3: Emerging Issues
 i. Administrative Reforms: Need and Importance
 ii. 2nd Administrative Reforms Commission – Features and Recommendations

Unit-4: Technology and Integrity in Government
 i. e-Government
 ii. Values and Ethics in Administration

Unit-5: Control over Administration
 i. Redressal of Citizen Grievances: Transparency, Accountability and Right to Information Act
 ii. Administrative Accountability: Legislative and Judicial Control

Suggested Readings:
1. S.R Maheshwari "Indian Administration" Orient Black Swan Publishers, New Delhi
2. Ramesh K.Arora & Rajni Goyal "Indian Public Administration" New Age International Publishers, New Delhi
3. M. Laxmikanth "Public Administration" Tata Mc Graw Hills Publishers, New Delhi
4. Bharata Desha Paalana Telugu Academy Publication, Hyderabad
5. Avasthi A. 1980. Central Administration: Tata Mc Graw Hill: New Delhi.
6. Basu, D. D. 2004. Introduction to the Constitution of India; Prentice Hall: New Delhi
7. Puri, V.K. 2005. Local Government and Administration, Modern Publishers, Jalandhar

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Public Administration

B.A. III YEAR
Paper – V : Semester-V: Human Resources Management

Unit - 1: Nature of Human Resource Management
  i.   Meaning and Significance of Human Resource Management
  ii.   Human Resource Planning

Unit - 2: Office Management
  i.   Concept and Principles of Office Management
  ii.   Job Analysis, Job Description, Recruitment and Promotion
  iii.   Compensation Administration - Wage, Pay and Pay Commissions

Unit - 3: Human Resource Development
  i.   Performance and Competency Mapping System
  ii.   Employee Capacity Building Strategies-Training
  iii.   Total Quality Management and Productivity Management

Unit - 4: Emerging Trends
  i.   Reddressal of Employee Grievances
  ii.   Right sizing, Outsourcing and Consultancies
  iii.   Interpersonal Skills

Unit – 5: Process of Management
  i.   Strategic Planning
  ii.   Management by Objectives (MBO)
  iii.   Decision making

Suggested Readings:
1.   Aswathappa K.(2002) "Human Resource and Personnel Management", Tata Mc Graw Hill Publishers, New Delhi
2.   Seema Sanghi, Human Resource Management, Mc Millan, Delhi, 2011.
3.   Subba Rao P., Essentials of Human Resource Management and Industrial Relations, Himalaya Publishing, Mumbai.
4.   Dr.Rao, P.L., Comprehensive HRM, Excel Pub. New Delhi.
5.   Venkatratnam C.S. and Srivastava, V.K., Personnel Management and HRM, Tata McGraw Hill Co.Ltd., New Delhi.

Public Administration

B.A. III YEAR
Paper – V Optional (A) : Semester-V: Rural Local Governance

Unit-1: Introduction
  i.   Democratic Decentralization and Local Organisations
  ii.   Evolution of Rural Governance Institutions-Balwanth Rai Mehtha
  iii.   Ashok Mehtha Committee

Unit – 2: Reforms in Rural Local Governance
  i.   Third Generation Panchayats
  ii.   73rd Constitutional Amendment Act
  iii.   Status of PRIs in Schedule (V & VI Areas)

Unit-3: Local Organisations for Rural Development
  i.   Panchayati Raj: Patterns, Functions and Performance
  ii.   Finances of Panchayati Raj Institutions --- State Finance Commission
  iii.   State Control over Rural Local Governments

Unit – 4: Accountability and Control
  i.   Executive control and Legislative control
  ii.   State and Local Government relations
  iii.   Human Resource at Local Level

Unit-5: Rural Development Strategies and Services
  i.   Rural Development: Strategies, Programs and Issues
  ii.   Co-operatives: Structure, Functions and Performance
  iii.   Basic Services and Welfare Measures in Rural Areas

Suggested Readings:
1.   S.R Maheshwari "Indian Administration" Orient Black Swan Publishers, New Delhi
2.   Avasthi &Maheshwari "Public Administration", Laxminarain Agarwal Educational Publishers, Agra
3.   M.Laxmikanth "Public Administration" Tata Mc Graw Hills Publishers, New Delhi
4.   S.R Maheshwari "Local Government in India" Orient Longman Publishers, New Delhi
5.   Sthanika Prabhutvalu,Telugu Academy Publication, Hyderabad
6.   Prof RamReddy " Patterns of Panchayatiraj in India", Mac Milan India
7.   NIRD,Rural Development in India, some facets, NIRD Publications

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Public Administration

B.A. III YEAR
Paper – V Optional (B) : BA Semester-VI: Urban Local Governance

Unit-1: Local Organisations for Urban Development
    i. Evolution of Urban Local Bodies- Pattern, Functions and Performance
    ii. Constitutional Status of Urban Local Governments with special reference to 74th CAA

Unit-2: Strategies for Urban Development
    i. Urban Development: Strategies, Programs and Issues
    ii. Finances of Urban Local Governments
    iii. Urbanization in India – Policy and Strategies

Unit-3: Urban Services
    i. Basic Services and Welfare Measures in Urban Areas
    ii. Urban Development Authorities and Parastatals
    iii. Sustainable Development and Future of Local Governance

Unit-4: Agencies and Programs for Rural and Urban Sector
    i. Development Planning, District Planning Committee
    ii. Special Agencies for Rural and Urban Development
    iii. Voluntary Agencies for Rural and Urban Development
    iv. Elimination of Poverty Initiatives in Rural and Urban Areas

Unit – 5: Urban Bodies/Control
    i. State control and Supervision over local bodies
    ii. Urban development authorities in Telangana State and their working
    iii. Officials and Political Executives

Suggested Readings:
1.   S.R Maheshwari "Indian Administration" Orient Black Swan Publishers, New Delhi
2.   Avasthi & Maheshwari "Public Administration", Laxminarain Agarwal Educational Publishers, Agra
3.   M.Laxmikanth "Public Administration" Tata Mc Graw Hills Publishers, New Delhi
4.   S.R Maheshwari "Local Government in India" Orient Longman Publishers, New Delhi
5.   Sthanika Prabhutvalu, Telugu Academy Publication, Hyderabad

Public Administration

B.A. III YEAR
Paper – VI : Semester-VI: Financial and Material Resources Management

Unit- 1: Introduction
    i.   Meaning and Scope of Financial Management
    ii.   Importance of Financial Management

Unit-2: Budget
    i.   Concept and Principles of Budget
    ii.   Preparation of Budget
    iii.   Enactment and Execution of Budget

Unit-3: Financial Institutions
    i.   Organization and Functioning of Finance Ministry
    ii.   Union – State Financial Relations and the role of Finance Commission
    iii.   Parliamentary Financial Committees: Public Accounts Committee, Estimates Committee and Committee on Public Undertakings

Unit- 4: Materials Management
    i.   Meaning and Concept of Materials Management
    ii.   Procurement, Storage and Distribution
    iii.   Inventory Control and Management

Unit – 5: Material Management Linkages
    i.   Production Management
    ii.   Marketing Management
    iii.   Human Resource Management

Suggested Readings:
1.   S.L Goel, "Financial Administration and Management" Sterling publications, New Delhi
2.   Chandra Prasanna "Financial Management: Theory and Practice" Tata Mc Graw Hill Publishers, New Delhi
3.   M.Laxmikanth "Public Administration" Tata Mc Graw Hills Publishers, New Delhi
4.   Nair, "Purchasing and Material Management" Vikas Publishing   House, New Delhi.
5.   Gopal Krishnan "Handbook of Materials Management" Prentice Hall of India Pvt. Ltd., New Delhi.
6.   Gopalakrishnan, P. & Sundarshan, M "Materials Management: An Integrated Approach" Prentice Hall of India Pvt. Ltd., New Delhi.
7.   Vanarula Nirvahana,Telugu Academy publication, Hyderabad

Public Administration

B.A. III YEAR
Paper – VI Optional (A) : Semester-VI: E-Governance: Concepts, Institutions and Methods

Unit-1: Introduction
- **i.** Concept of Governance and Good Governance
- ii. Meaning, Evolution and Importance of E-Governance
- iii. E-governance prospects and emerging challenges

Unit-2: Acts and Initiatives
- i. Information Society and Community Empowerment
- ii. IT Acts and National E-Governance Plan
- iii. E-Governance Initiatives in India

Unit – 3: E-governance and Theoretical aspects
- i. E-governance theories
- ii. Public Private Partnership
- iii. Right to Information

Unit-4: Methods of E-Governance
- i. GIS Based Management Systems
- i. Citizen Database and Human Development
- iii. National Informatics Centre (NIC)

Unit-5: E-Governance in Public Office
- i. Back Office Operations and Front Office Delivery
- ii. Business Process Reengineering (BPR)
- iii. Accountability and Transparency

Suggested Readings:
1. Alexander C.J. Pal LA, Digital Democracy; Policy and Politics in the Wired World. Don Mille Oxford University Press, 1998
2. Kiran Bedi, Parminder Jeet Singh and Sandeep Srivastava, government @net , New Governance opportunities for India
3. Andhra Pradesh Government, Vision 2020 Hyderabad: State Secretariat, 1999.
4. Tracy Laquey, Internet Companion: A Beginner's Guide to Global Networking, London, Addison-Wesley Publishing Company, 1994
5. Douglas E.Comer, The Internet Book, New York, Prentice-Hall International, 1995.
6. CSR Prabhu, E-Governance, Concepts and Case Studies, PHI, New Delhi, 2004.
7. Subhash Batnagar, E-Governance, Sage Publication, London, 2004.
8. Y. Pardhsardhy, E-Governance and Indian Society with Case Studies, Kanishka Publishers, New Delhi, 2009.
9. IGNOU, Text Book on E-Governance, New Delhi.

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Public Administration

B.A. III YEAR
Paper – VI Optional (B) : <u>Semester-VI: Public Office Administration</u>

Unit - 1: Introduction:
- **i.** Meaning and Importance of Office Administration.
- ii. Principles of Office Administration.
- iii. Powers and Functions of Office Manager.

Unit - 2: Modern Office appliances and Furniture:
- i. Meaning and objectives of mechanization.
- ii. Merits and demerits of mechanization.
- iii. Types of furniture fittings and accessories.

Unit - 3: Filing and Indexing:
- i. Meaning and importance of filing.
- ii. Principles of maintaining records.
- iii. Types of indexing system.

Unit - 4: Office accommodation and layout:
- i. Office space planning or office layout.
- ii. Principles of office layout.
- iii. Systems approach to office layout.

Unit - 5: Office Machines and equipment:
- i. Importance and objectives of office machines "Office safety and security"
- ii. Meaning and importance of office safety
- iii. Office environment safety hazards and steps to improve office safety.

Suggested Readings:
1. S.K. Sahni and GSP Sundaresh; Office Organisation and Management.
2. R.K. Chopra; Office Organisation and Management.
3. C.L. Littlefield Rachel Frank; Office Administration and Management.
4. S.P. Arora; Office Organisation and Management.
5. Gernard Tavernier; Basic Office Systems and Records

Syllabus w.e.f. 2016-2017

B.A Human Resource Management
I YEAR

Semester – I

Paper-I : Management

Unit – 1: Basics of Management
    i.   Meaning and Importance of Management
    ii.   Evolution of Management
    iii.   Principles and Functions of Management

Unit – 2: Approaches to HRM
    i.   Behavioral Approach, Herbert A Simon
    ii.   Human Relations Approach Elton Mayo
    iii.   Management Science Approach
    iv.   Systems Approach to Management Process

Unit – 3: Management and Society
    i.   Concept of Corporate Social Responsibility
    ii.   Business Management and Professional Ethics
    iii.   Challenges of HR Professionals

Unit – 4: The Process of Management - I
    i.   Strategic Planning.
    ii.   Decision Making
    iii.   Management by Objectives (MBO)

Unit – 5: The Process of Management - II
    i.   Leadership and Control
    ii.   Decentralization
    iii.   Restructuring and Reinventing

Suggested Readings:
1.   Koontz and Heinz Weihrich, Essentials of Management, Penguin Books, New Delhi, 2006 (Reprint).
2.   Sherlekar, S.A., Management, Himalaya Publishing House, Mumbai.
3.   Tripathy, P.C. and P.N.P. Reddy, Management, Tata McGraw Hill, New Delhi, 2007 (3rd Edition).
4.   Robbins Stephen, P. and Mary Coulter, Management, Pearson Education Ltd., New Delhi.
5.   Stoner, James A.F.Freeman " Management" pearson Education

**B.A Human Resource Management
I YEAR**

Semester – II

Paper-II : Organizational Behaviour

Unit – 1: Introduction
  i.   Concept and importance of Organizational behaviour.
  ii.   Organizational Behaviour : Relationship with other social sciences.
  iii.   Characteristics of Formal, Informal organizations

Unit –2: Models of Organization Behaviour
  i.   SOBC Model
  ii.   Cognitive Model
  iii.   Reinforcement Model and Psychoanalytical model

Unit – 3: Individual Behaviour
  i.   Aspects of Individual behavior, personality, perspection, attitude and values
  ii.   Personality Development, Determinants, Theories of personality
  iii.   Stress and Counselling

Unit – 4: Group Behaviour
  i.   Group Dynamics, Formation of Groups
  ii.   Formal and Informal Groups
  iii.   Team Building

Unit – 5:   Organizational Development
  i.   Importance of organizational development
  ii.   Organizational behavior across cultures
  iii.   Organizational development and change

Suggested Readings:
1.   Keith Davis and New Strom, J.W: Human Behaviour at Work: Organizational Behaviour, New Delhi, McGraw Hill.
2.   Fred Luthans, Organizational Behaviour, New Delhi, McGraw Hill
3.   Paul Hersey and Keith Blanchard, Management of   Organizational Behaviour, New Delhi, Prentice Hall of India Pvt. Ltd.
4.   Stephen P. Robbins – Organizational Behaviour; Concepts, Controversies, Applications; New Delhi, Prentice Hall of India Pvt. Ltd.
5.   Katz and Khan, Social Psychology and Organization, New Delhi,   McGraw Hill.
6.   V.S.P. Rao an Narayana: Organizational Theory and Behaviour, New Delhi, Vani Educational Books.
 7.   M.G. Rao and V.S.P. Rao, Organizational Behaviour; Text and Cases, New Delhi, Konark Publishers.

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B.A Human Resource Management
II YEAR

SEMESTER – III

Paper-III : Human Resource Management

Unit – 1: Introduction
- i.   Meaning and Importance of Human Resource Management
- ii   Personnel Management and Human Resource Management functions
- iii.   Human Resource Practices: Contemporary Challenges

Unit –2:. Human Resources Planning
- i.   Importance of Human Resource Planning
- ii.   Process of Human Resource Planning
- iii.   Human Resource Planning in India

Unit –3: Recruitment & Selection
- i.   Importance of Recruitment and Types of Recruitment
- ii.   Recruitment principles, Methods and Selection Process
- iii.   Managing Career, Career Planning

Unit – 4: Training & Development
- i.   Importance of Training
- ii.   Types and Methods of Training
- iii.   Planning and implementation of training programmes

Unit – 5: Strategic Human Resource
- i.   Importance of Strategic Human Resource
- ii.   Technology Upgradation – Multi skilling
- iii.   HR Account and HR Auditing

Suggested Readings:
1.   Seema Sanghi, Human Resource Management, McMillan, Delhi, 201i.
2.   Subba Rao P., Essentials of Human Resource Management and Industrial Relations, Himalaya Publishing, Mumbai.
3.   V.S.P.Rao, Human Resource Management : Text & Cases, Excel Books, Delhi.
4.   Dr.Rao, P.L., Comprehensive HRM, Excel Pub. New Delhi.
5.   Venkatratnam C.S. and Srivastava, V.K., Personnel Management and HRM, Tata McGraw Hill Co.Ltd., New Delhi.

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B.A Human Resource Management
II YEAR

SEMESTER – IV

Paper-IV : Compensation Management

Unit – 1: Introduction
    i.   Importance of Compensation Management
    ii.   Employee Compensation and influencing factors
    iii.   Fixation of Wage and Salaries

Unit – 2: Employee Compensation
    i.   Compensation, Plan and Policies
    ii.   Rewards and Expectancy theory
    iii.   Methods of Appraising Performance

Unit – 3: Concepts and Emerging Trends
    i.   Employee Separation
    ii.   Redundancy
    iii.   Downsizing,Voluntary Retirement, Out Sourcing

Unit – 4: Strategy: Approaches and issues
    i.   Role of Knowledge Management – Definition & Significance
    ii.   Role of Change Management
    iii.   Attraction – Retention Strategies

Unit – 5: International Human Resource Management
    i.   Importance and Approaches of International Human Resource Management
    ii.   Objectives and Functions of International Human Resource Management
    iii.   Issues and Challenges.

Suggested Readings:
1.   Dr. Mousumis. Bhattacharya & Dr Nilanjan Sen Gupta "Compensation management" Excel books, New Delhi
2.   Prof Sharad D.Geet " Human Resource Management" Nirali Prakashan, Pune
3.   Mrs Y.L.Giri " Human Resource Management: Managing people at work, Nirali Prakashan, Pune
4.   Dr A.Vijaykumar and others"Human Resource Management" Telugu Akademi, Hyderabad
5.   Subba Rao P., Essentials of Human Resource Management and Industrial Relations, Himalaya Publishing, Mumbai.

B.A Human Resource Management
III YEAR

SEMESTER – V

Paper – V : Industrial Relations

Unit – 1: Introduction to industrial Relations:
    i.   Industrial Relations: concept, Models, and its Evolution
    ii.   Objectives and Importance of Industrial relations
    iii.   Approaches to Industrial Relations

Unit – 2: Grievance Management
    i.   Meaning and causes of grievance
    ii.   The need for a Grievance Procedure
    iii.   Grievance management in industry

Unit – 3: Managerial and Employers Associations in India
    i.   Meaning and objectives of employers associations
    ii.   The Origin and Growth of Employers Associations
    iii.   The Structure, Finances, Memberships, Activities and Services of Organizations
    iv.   Future Challenges

Unit – 4: Industrial conflicts
    i.   Meaning, definition and features of industrial conflicts
    ii.   Causes of industrial conflicts
    iii.   Prevention of industrial conflicts

Unit – 5: Labour – Management Conflicts
    i.   Importance of Labour Management
    ii.   Trends, Causes, Manifestations and Impact
    iii.   Settlement Machinery – Conciliation, Arbitration and Adjudication

Suggested Readings:
1.   Sarma AM, "Industrial Relations" Himalaya Publication
2.   CS Venkataratnam, "Industrial Relations" Oxford Publishers, New Delhi
3.   Dr P.Subba Rap "Essentials of Human Resource Management and Industrial Relations" Himalaya Publishing House, New Delhi
4.   Sinha PRN Et al "Industrial Relations, Trade Unions and   Legislation", Pearson Education
5.   Singh B.D. "Industrial Relations emerging Paradigms", Excel Books,New Delhi

B.A Human Resource Management
III YEAR

SEMESTER –V

Paper-V : Optional (A) Information Technology

Unit – 1: Introduction
- i. IT Evolution and Significance
- ii. National Policy on IT 2012 and National Cyber Security Policy - 2013
- iii. Human Factors and Information Technology

Unit – 2: Introduction and IT
- i. Importance of Computers
- ii. Hardware and Software
- iii. Input – Output Device and Storage Device

Unit – 3: Computer Networks – Internet Concepts
- i. Introduction to Database, Types of Database,
- ii. Components of Database
- iii. Range of Database and Costs and Risks of Database

Unit – 4: Information Technology and Administration
- i. IT Techniques in Administration
- ii. Capacity building for IT
- iii. E-governance, opportunities and challenges

Unit – 5: E-HRM
- i. Technology, Social Progress and Empowerment
- ii. Implementation of E-HRM
- iii. Aspects of E-HRm

Suggested Readings:
1. Dharminder kumar and sangeeta gupta, Management Information System
2. Ashok Arora and Akshaya Bhatia Management Information System
3. Jawadekar,W.S Management Information System, Tata Mc Graw hill
4. Pandey,US, Rahul Srivatsava& Saurabh Shukla, E-Commerce and its Applications,2007
5. Subba Rao P., Essentials of Human Resource Management and Industrial Relations, Himalaya Publishing, Mumbai.

B.A Human Resource Management
III YEAR

SEMESTER – V

Paper-V : Optional (B) Employee Welfare

Unit – 1: Labour Welfare:
  i.   Concept, Scope and Objectives
  ii.   Philosophy of Labour Welfare
  iii. Agencies of Labour Welfare – State Trade Union & Voluntary Agencies

Unit – 2: Evolution of Labour Welfare Policy
  i.   Industrialization and rise of labour problems
  ii.   Characteristics of Indian labour force
  iii. Evolution of labour welfare policies

Unit – 3: Labour Welfare Programmes:
  i.   Statutory – Non – Statutory, Canteen, Creches, Housing, Washing, Shelter's, Lunch Rooms
  ii.   Welfare Officer – Status, Role and Functions
  iii. Voluntary Welfare Measures – Welfare Work by Workers Organization and Employers.

Unit – 4: Industrial Health & Hygiene:
  i.   Industrial Health, Stationary, Provisions, Hygiene Education, Occupational Disease
  ii.   Occupational hazardous, Hygiene Department
  iii. Workers Education – Central Board of Workers Education – Objectives

Unit – 5:   Ethical issues in HRM
  i.   Introduction
  ii.   Ethical issues in Employment and HRD
  iii. Ethical issues in wage and salary administration

Suggested Readings:
1.   Tripathi, P.C. "LabourWelfare and Social Security", Personnel   Management and Industrial Relations", Sultan Chand &   Sons, New Delhi
2.   Aswathappa, K. "Human Resource Management", Tata McGraw   Hill   Education   Private Limited, New Delhi.
3.   Dr P.Subba Rao   "Essentials of Human Resource Management and Industrial Relations" Himalaya Publishing House,New   Delhi
4.   Swetha Thiruchanuru "Effectiveness of employee welfare   measures with reference to SCCL", LAP Lambert Academic publishers
5.   Madhusudhan Gubbala,Nagaraju Battu "Employee welfare in Industry" LAP Lambert Academic publishers

B.A Human Resource Management
III YEAR

SEMESTER – VI

Paper-VI : Industrial Laws

Unit – 1: Trade unions in India
  i.   Origin and Growth of Trade Unions
  ii.   Trade Unions – Concept, Constitution & Structures at National Level and its Functions
  iii. Trade Unions Problems and its Challenges

Unit – 2: Industrial laws
  i.   Trade union act 1926
  ii.   Trade unions(amendment)act 2001
  iii. Industrial employment act 1946

Unit – 3: Workers Participation in Management
  i.   Meaning ,objectives and essential conditions
  ii.   Workers Committee (Industrial Disputes Act)
  iii. Joint Management Councils
  iv.   Board of Conciliation
  v.   Collective Bargaining

Unit – 4: Employee discipline
  i.   Meaning, Objectives
  ii.   Disciplinary Procedure
  iii. Role of HR Manager
  iv.   Principles of Effective Discipline

Unit – 5: Industrial Disputes
  i.   Industrial Disputes, Causes and Consequences
  ii.   Functioning of Trade Unions
  iii. Collective bargaining and workers participation

Suggested Readings:
1.   Malik P.L. "Industrial Law" Eastern Book Company, Lucknow
2.   P.K.Padhi "Labour and Industrial laws" PHI Learning Private Limited, New Delhi
3.   Arun Monappa and others "Industrial Relations and Labour Laws" Tata McGraw Hill Education Pvt. Ltd, New Delhi.
4.   H.L.Kumar; "Labour Laws", Universal Law Publishing Co, New Delhi.

Department of Public Administration & HRM
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B.A Human Resource Management
III YEAR

SEMESTER – VI

Paper-VI : Optional (A) Social Security Legislation

Unit – 1: Introduction
- i. Concepts, Scope and Importance of Social security
- ii. Industrial Employees, Financing of Social Security Schemes
- iii. Social Security Legislation

Unit – 2: Labour Management
- i. Labour Ministry, Chief Labour Commissioner, Director of Factories
- ii. Director General of Employment & Training
- iii. Director General of Factory Advice Service

Unit – 3: Legislation:
- i. Payment of Bonus Act
- ii. Workmen's Compensation Act
- iii. Coal Mines

Unit – 4: International Organisations
- i. ILO on Social Security Legislation
- ii. International norms on social security for labour
- iii. ILO Conventions and Recommendations on Social Security
- iv. Comparison of minimum standards of ILO and standards envisaged in Indian Legislation

Unit – 5: Payment of Gratuity Act
- i. Importance of Payment of Gratuity Act 1972
- ii. Payment and Protection of Gratuity
- iii. Provident Fund Act

Suggested Readings:
1. R.N.Choudhry, Commentary on the Workmen's Compensation Act 1923 (2000), Orient
2. S.C. Srivastava, Social Security and Labour Laws 1985
3. R.W. Rideout Principles of Labour Law 1988
4. H.K. Saharay, Industrial and labour Laws of India 1987
5. Munkman, Employers' Liability
6. Harry Calvert, Social Security Laws

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**B.A Human Resource Management
III YEAR**

SEMESTER – VI

Paper-VI : Optional (B) Human Resource Information Systems

Unit – 1: Introduction
  i.   Introduction, Concept and Definition of Human Resource Information Systems
  ii.   Human Resource Information Systems – Models
  iii.   Acquiring and Implementing Human Resource Information Systems

Unit – 2: Information System : Decision Making
  i.   Decision making concepts and models
  ii.   Decision Analysis
  iii.   Management Information System and decision tables – decision tree & data flow diagrams

Unit – 3: Cost Benefit Analysis & f Human Resource Information systems
  i.   Value of Information
  ii.   Reliability, Maintenance and Security of Human Resource information Systems
  iii.   Strategic Planning and HR Information Systems

Unit – 4: Application of MIS
  i.   Mee Seva
  ii.   E-Suvidha
  iii.   RTA : M-Wallet

Unit – 5: Use of ICT for MIS
  i.   Concept of DBMS and components of computerized information systems
  ii.   Database concept – Types and Advantages
  iii.   Database control – File design – Types and structure

Suggested Readings:
1.   Dharminder kumar and sangeeta gupta, Management Information System
2.   Ashok Arora and Akshaya Bhatia Management Information System
3.   Jawadekar,W.S Management Information System, Tata Mc Graw hill
4.   Pandey,US, Rahul Srivatsava& Saurabh Shukla, E-Commerce and its Applications,2007
5.   Subba Rao P., Essentials of Human Resource Management and Industrial Relations, Himalaya Publishing, Mumbai.

UNIT FIVE (SHORT FICTION)	Text	Arjun by Mahaswetha Devi
	Grammar	Sentence Completion
	Etymology	Compounding
	Reading Comprehension	Dr Samala Sadashiva
	Writing	E-correspondence
	Language Skills	Listening Skills: Strategies for Effective Listening
	Communication & Soft Skills	Role Play
UNIT SIX (PROSE)	Text	Women by Ismat
	Grammar	Cloze Test
	Etymology	Onomatopoeia
	Reading Comprehension	Elgandal Fort, Vemulawada
	Writing	Report Writing
	Language Skills	Speaking Skills: Public Speaking
	Communication & Soft Skills	Debates
UNIT SEVEN (POETRY)	Text	Father Returning Home by Dilip Chitre
	Grammar	Synthesis of Sentences: Simple to Compound, Compound to Simple
	Etymology	Sound Symbolism
	Reading Comprehension	Art Forms: Pembarthy, Nirmal
	Writing	Creative Writing

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	Language Skills	Reading Skills: Intensive Reading and Extensive Reading
	Communication & Soft Skills	Group Discussion (GD)
UNIT EIGHT (DRAMA)	text	**Jatara by Arjun Deo Charan**
	Grammar	Synthesis of Sentences: Simple to Complex, Complex to Simple
	Etymology	Etymology of Phrases
	Reading Comprehension	Folklore
	Writing	Résumé/ CV
	Language Skills	Writing Skills: Paraphrasing
	Communication & Soft Skills	Mock Interviews

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DEPARTMENT OF ENGLSIH
KAKATIYA UNIVERSITY

UG I Semester

LESSON ONE (SHORT FICTION)	TEXT	OLD MAN AT THE BRIDGE by Ernest Hemmingway
	PRONUNICIATION	CONSONANTAL SOUNDS
	GRAMMAR	ARTICLES
	VOCABULARY	SYNONYMS
	SPELLING	PICK OUT THE WRONGLY-SPELT WORDS
	CONVERSATIONS	ICE-BREAKING
	READING PASSAGE	RUDRAMA DEVI
	LIFE SKILLS	SELF-AWARENESS
LESSON TWO (PROSE)	TEXT	INDIA AND DEMOCRACY by Dr.B.R.AMBEDKAR
	PRONUNICIATION	VOWEL SOUNDS: MONOPHTHONGS
	GRAMMAR	PREPOSITIONS
	VOCABULARY	ANTONYMS
	SPELLING	USE OF 'UN' OR 'DIS'
	CONVERSATIONS	INTRODUCING
	READING PASSAGE	MEDARAM JATARA
	LIFE SKILLS	EMPATHY
LESSON THREE (POETRY)	TEXT	THE SCRIBE by WALTER DE LA MARE
	PRONUNICIATION	VOWEL SOUNDS: DIPHTHONGS
	GRAMMAR	TENSES
	VOCABULARY	HOMOPHONES & HOMONYMS
	SPELLING	USE OF 'TION' OR 'SION'
	CONVERSATIONS	DESCRIBING A PERSON/PLACE/EVENT
	READING PASSAGE	KALOJI
	LIFE SKILLS	CRITICAL THINKING & CREATIVE THINKING SKILLS
LESSON FOUR (DRAMA)	TEXT	THE NEVER-NEVER NEST by CEDRIC MOUNT
	PRONUNICIATION	PLOSIVES
	GRAMMAR	FRAMING QUESTIONS
	VOCABULARY	ONE-WORD SUBSTITUTES
	SPELLING	USE OF 'MENT'
	CONVERSATIONS	GIVING DIRECTIONS
	READING PASSAGE	KUNTALA WATERFALL
	LIFE SKILLS	DECISION-MAKING SKILL

1. _Ashok_   2. _[signature]_   3. _[signature]_

4. _[signature]_   5. _[signature]_   6. _[signature]_

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Department of English
Kakatiya University
UG II Semester

LESSON FIVE (SHORT FICTION)	TEXT	THE RELUCTANT PHILANTHROPIST by GOLLAPUDI SRINIVASA RAO
	PRONUNICIATION	FRICATIVES
	GRAMMAR	DISCOURSE MARKERS
	VOCABULARY	IDIOMS & PHRASES
	SPELLING	USE OF 'IE' AND 'EI'
	CONVERSATIONS	SEEKING INFORMATION
	READING PASSAGE	BATHUKAMMA
	LIFE SKILLS	PROBLEM-SOLVING SKILL
LESSON SIX (PROSE)	TEXT	HOW SHOULD ONE READ A BOOK by VIRGINIA WOOLF
	PRONUNICIATION	AFFRICATES & NASALS
	GRAMMAR	VOICE & DEGREES OF COMPARISON
	VOCABULARY	PHRASAL VERBS
	SPELLING	USE OF 'ABLE' & 'IBLE'
	CONVERSATIONS	ORGANIZING A MEETING/INVITING GUESTS
	READING PASSAGE	RAMAPPA
	LIFE SKILLS	EFFECTIVE COMMUNICATION SKILL
LESSON SEVEN (POETRY)	TEXT	AFTER BLENHEIM by ROBERT SOUTHEY
	PRONUNICIATION	LATERALS, SEMI-VOWELS
	GRAMMAR	REPORTING SPEECH & QUESTION TAGS
	VOCABULARY	LEXIS/WORD-BUILDING
	SPELLING	USE OF PREFIXES & SUFFIXES
	CONVERSATIONS	ORGANIZING A MEETING/PROPOSING A VOTE OF THANKS
	READING PASSAGE	BONALU
	LIFE SKILLS	INTER-PERSONAL RELATIONSHIPS
LESSON EIGHT (DRAMA)	TEXT	THE INFORMER by BERTOLT BRECHT
	PRONUNICIATION	SYLLABIC STRUCTURE
	GRAMMAR	COMMON ERRORS
	VOCABULARY	COLLOCATIONS
	SPELLING	
	CONVERSATIONS	
	READING PASSAGE	KINNERASANI
	LIFE SKILLS	COPING WITH STRESS AND EMOTIONS

1. _Scott_

2. _____ 3. _____

4. _____

5. S. Sailija Rani 24/4/16   6. _____

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KAKATIYA UNIVERSITY
UG (GENERAL ENGLISH) SEMESTER – I
MODEL PAPER -- C.B.C.S. - 2016
(B.A., B.Com., B.Sc., B.B.M. & B.C.A.)

Time: 3 Hours   Max. Marks: 80

SECTION – A

Q1. Answer any FOUR from the following questions: 5 X 4 = 20

A. Fill in the blanks with suitable Articles	5 x 1 = 5
B. Fill in the blanks with suitable Prepositions	5 x 1 = 5
C. Fill in the blanks with appropriate Verb Forms	5 x 1 = 5
D. Write phonetic transcription for the following English words	5 x 1 = 5
E. Antonyms	5 x 1 = 5
F. Synonyms	5 x 1 = 5

SECTION – B

Answer all the questions.   4 X 15 = 20

Q2   A. 1. "Old Man at the Bridge" Essay question in about 150 words   10
          2. Seen comprehension passage from "Old Man at the Bridge"   5 x 1 = 5

OR

B. 1. "Old Man at the Bridge" Annotation in about 75 words   10
   2. Unseen comprehension passage   5 x 1 = 5

Q3   A. 1. "India and Democracy" Essay question in about 150 words   10
          2. Seen comprehension passage from "India and Democracy"   5 x 1 = 5

OR

B. 1. "India and Democracy" Annotation in about 75 words   10
   2. Unseen comprehension passage   5 x 1 = 5

Q4   A. 1. "The Scribe" Essay question in about 150 words   10
          2. Write the English words for the following phonetic transcription   5 x 1 = 5

OR

B. 1. "The Scribe" Annotation in about 75 words   10
   2. Spelling (Pick out the rightly spelt word out of the four)   5 x 1 = 5

Q5   A. 1. "The Never-Never Nest" Essay question in about 150 words   10
          2. Homophones (choose the right one out of two)   5 x 1 = 5

OR

B. 1. "The Never-Never Nest" Annotation in about 75 words   10
   2. One-word substitutes   5 x 1 = 5

(signature) 26/10

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(signature) 31.10.16

KAKATIYA UNIVERSITY
UG (GENERAL ENGLISH) SEMESTER END – I
MODEL PAPER – C.B.C.S. – 2017-2018
(B.A./B.Sc./B.Com./ B.B.A./ B.A.(L) (I Semester) Examination
Time: 3 Hours

Max. Marks: 80

Answers to the following questions should be in SERIAL ORDER

SECTION – A (Marks: 4 X 5 = 20)

Q1. Answer any FOUR of the following:

A. Fill in the blanks with suitable Articles (a, an *or* the)
B. Write the English words for the following phonetic transcription
C. Pick out the rightly spelt word out of the four alternatives
D. Choose the right one out of two homophones given in the brackets
E. Comprehension Passage - Seen
F. Comprehension Passage - unseen

$5 \times 1 = 5$
$5 \times 1 = 5$
$5 \times 1 = 5$
$5 \times 1 = 5$
$5 \times 1 = 5$
$5 \times 1 = 5$

SECTION – B (Marks: 60)

Answer all the questions

Q 2 Attempt either *A* or *B* of the following

$1 \times 10 = 10$

A. Fill in the blanks with suitable preposition $(10 \times 1 = 10)$

OR

B. Write the one-word substitute for the following $(10 \times 1 = 10)$

Q3 Attempt either *A* or *B* of the following

$1 \times 10 = 10$

A. Fill in the blanks with appropriate verb form $(10 \times 1 = 10)$

OR

B. Write the antonym of the following words $(10 \times 1 = 10)$

Q4 Attempt any two of the following Essay Questions in about 125 words

$2 \times 10 = 20$

two out of four (Unit 1 & 2)

Q5 Attempt any two of the following Annotations in about 125 words

$2 \times 10 = 20$

two out of four (Unit 3 & 4)

KAKATIYA UNIVERSITY
UG (GENERAL ENGLISH) SEMESTER END – II
MODEL PAPER -- C.B.C.S. – 2017-2018
(B.A./B.Sc./B.Com./ B.B.A./ B.A.(L) (II Semester) Examination

Time: 3 Hours

Max. Marks: 80

Answers to the following questions should be in SERIAL ORDER

SECTION – A   (Marks: 4 X 5 = 20)

Q1. Answer any FOUR of the following:

A. Fill in the blanks with 'ie' or 'ei' to complete the spelling of following words	5 x 1 = 5
B. Add suitable Question Tag to the following statements	5 x 1 = 5
C. Write the other forms for the words underlined as mentioned in the brackets	5 x 1 = 5
D. Fill in the blanks with suitable phrasal verb given below	5 x 1 = 5
E. Comprehension Passage - Seen	5 x 1 = 5
F. Comprehension Passage - unseen	5 x 1 = 5

SECTION – B   (Marks: 60)

Answer all the questions

Q 2   Attempt either *A* or *B* of the following   1 X 10 = 10

A. Rewrite the following sentences correcting the underlined part
(10 X 1 = 10)

OR

B. Change the degree of adjective in the following sentences as directed
(10 X 1 = 10)

Q3   Attempt either *A* or *B* of the following   1 X 10 = 10

A. Fill in the blanks with suitable Discourse Markers given below
(10 X 1 = 10)

OR

B. Change the following sentences as directed (Active and Passive Voice)
(10 X 1 = 10)

Q4   Attempt any two of the following Essay Questions in about 125 words   2 X 10 = 20

two out of four (Unit 1 & 2)

Q5   Attempt any two of the following Annotations in about 125 words   2 X 10 = 20

two out of four (Unit 3 & 4)

KAKATIYA UNIVERSITY
UG (GENERAL ENGLISH) SEMESTER END – III
MODEL PAPER – C.B.C.S. – 2017-2018
(B.A./B.Sc./B.Com./ B.B.A./ B.A.(L) (III Semester) Examination
Time: 3 Hours   **Max. Marks: 80**

Answers to the following questions should be in SERIAL ORDER

SECTION – A (Marks: 4 X 5 = 20)

Q1. Answer any FOUR of the following:

A. Find out the Errors in the parts of the given sentences labelled *A / B / C / D*	**5 x 1 = 5**
B. Correct the following sentences	**5 x 1 = 5**
C. Write a dialogue on the given situation	**5 x 1 = 5**
D. Write the prefix or suffix word given in the bracket	**5 x 1 = 5**
E. Comprehension Passage - Seen	**5 x 1 = 5**
F. Comprehension Passage - unseen	**5 x 1 = 5**

SECTION – B (Marks: 60)

Answer all the questions

Q2   Attempt either *A or B* of the following   **1 X 10 = 10**

A. Write a Formal Letter on the given idea

OR

B. Write a Paragraph based on the given hints in about 125 words

Q3   Attempt either *A or B* of the following   **1 X 10 = 10**

A. Make Notes on the following paragraph

OR

B. Expand the following Proverb in about 125 words

Q4   Attempt any two of the following Essay Questions in about 125 words   **2 X 10 = 20**

two out of four (Unit 1 & 2)

Q5   Attempt any two of the following Annotations in about 125 words   **2 X 10 = 20**

two out of four (Unit 3 & 4)

KAKATIYA UNIVERSITY
UG (GENERAL ENGLISH) SEMESTER END – IV
MODEL PAPER -- C.B.C.S. – 2017-2018
(B.A./B.Sc./B.Com./ B.B.A./ B.A.(L) (IV Semester) Examination

Time: 3 Hours

Max. Marks: 80

Answers to the following questions should be in SERIAL ORDER

SECTION – A   (Marks: 4 X 5 = 20)

Q1. Answer any FOUR of the following:

A. Transform the following sentences as directed (Simple, Compound, Complex) 5 x 1 = 5
B. Correct the following sentences   5 x 1 = 5
C. Cloze Test   5 x 1 = 5
D. Write grammatically correct sentences with the given Jumbled Words   5 x 1 = 5
E. Comprehension Passage - Seen   5 x 1 = 5
F. Comprehension Passage - unseen   5 x 1 = 5

SECTION – B   (Marks: 60)

Answer all the questions

Q2 Attempt either *A* or *B* of the following   1 X 10 = 10

A. E-correspondence on the given idea

OR

B. Description of a Person / Place in about 125 words

Q3 Attempt either *A* or *B* of the following   1 X 10 = 10

A. Prepare Curriculum Vitae/Résumé with the information given

OR

B. Write a Report on the given idea in about 125 words

Q4 Attempt any two of the following Essay Questions in about 125 words   2 X 10 = 20

two out of four (Unit 1 & 2)

Q5 Attempt any two of the following Annotations in about 125 words   2 X 10 = 20

two out of four (Unit 3 & 4)

Prof. V. Srinivas

Chairman, Board of Studies

DEPARTMENT OF ENGLISH

KAKATIYA UNIVERSITY

Warangal – 506 009

(Accredited with 'A' Grade by NAAC)

Off: 0870-2461422, Extn: 422 Mobile No. 9440564139

No. **491**/ENG/KU/2017

March 07, 2017

To

The Registrar
Kakatiya University
Warangal.

Sir,

Sub: Department of English – UG I Year II Semester English Model Paper – Communicated - Reg.

*****

Please find enclosed the English Model Paper of the UG I Year II Semester effective from the academic year 2016-2017.

This is for your information and necessary action.

Yours sincerely,

(V. SRINIVAS)

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(B.A./B.Sc./B.Com./ B.B.A./ B.A.(L) (II Semester) Examination

Time: 3 Hours   Max. Marks: 80

Answer the following questions in the SERIAL ORDER from 1 to 5

SECTION – A   (Marks: 4 X 5 = 20)

Q1. Answer any FOUR of the following:

A.	Fill in the blanks with (*ie*, *ei*, *ee*, *ab*, and *ib*) to complete the spelling	5 x 1 = 5
B.	Fill in the blanks with suitable Phrasal Verbs given in the bracket	5 x 1 = 5
C.	Add the suitable Question Tags for the following statements	5 x 1 = 5
D.	Write the other form of the word underlined as directed	5 x 1 = 5
E.	Correct the following sentences	5 x 1 = 5
F.	Transform the following sentences to other Degrees of Comparison as directed	5 x 1 = 5

SECTION – B   (Marks: 4 X 15 = 60)

Answer all the questions. (Attempt either *A* or *B* completely)

Q2 A. 1. "The Reluctant Philanthropist" (Essay question in about 150 words)   10
        2. Seen Comprehension passage from "The Reluctant Philanthropist"   5 x 1 = 5

OR

B. 1. "The Reluctant Philanthropist" (Annotation in about 75 words)   10
   2. Unseen Comprehension passage   5 x 1 = 5

Q3 A. 1. "On Reading Books" (Essay question in about 150 words)   10
        2. Seen Comprehension passage from "On Reading Books"   5 x 1 = 5

OR

B. 1. "On Reading Books" (Annotation in about 75 words)   10
   2. Unseen Comprehension passage   5 x 1 = 5

Q4 A. 1. "After Blenheim" (Essay question in about 150 words)   10
        2. Fill in the blanks with suitable Discourse Markers given in the brackets   5 x 1 = 5

OR

B. 1. "After Blenheim" (Annotation in about 75 words)   10
   2. Change the following sentences into Indirect Speech   5 x 1 = 5

Q5 A. 1. "The Informer" (Essay question in about 150 words)   10
        2. Change the following sentences into Passive Voice   5 x 1 = 5

OR

B. 1. "The Informer" (Annotation in about 75 words)   10
   2. Match the following Idioms with their suitable meanings   5 x 1 = 5

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DEPARTMENT OF ENGLISH
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ENGLISH TEXT BOOK (*ENGLISH FOR ACCOMPLISHMENT*) FOR
B.A., B.Com., B.Sc., B.B.M. & B.C.A. III SEMESTER

UNIT ONE (SHORT FICTION)	TEXT	The Touch By Abburi Chayadevi
	Grammar	Concord
	Etymology	Word Origin
	Reading Comprehension	P.V.Narasimha Rao
	Writing	Letter Writing
	Language Skills	Listening Skills: Types of Listening, Barriers to Effective Listening
	Communication & Soft Skills	Brain Storming
UNIT TWO (PROSE)	Text	To Students by M K Gandhi
	Grammar	Words and Their Forms
	Etymology	Fun with Words
	Reading Comprehension	Basara, Badradri
	Writing	Note-making / Note-taking
	Language Skills	Speaking Skills: Conversation Skills
	Communication & Soft Skills	JAM
UNIT THREE (POETRY)	Text	The Bat Messanger by Jashuva
	Grammar	Finding out correct option/ error
	Etymology	Loan Words
	Reading Comprehension	Perini
	Writing	Essay Writing
	Language Skills	Reading Skills: Skimming and Scanning
	Communication & Soft Skills	Oral Presentation
UNIT FOUR (DRAMA)	Text	Ramanujan by Partap Sehgal
	Grammar	Finding out correct order/ jumbled words
	Etymology	Derivations
	Reading Comprehension	Mimicry
	Writing	Expansion of Idea/ Proverb
	Language Skills	Writing Skills: Paragraph Writing
	Communication & Soft Skills	Dialogue Writing

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DSC-1A   DIFFERENTIAL CALCULUS
BS:104

Theory: 4 credits and Practicals: 1 credit
Theory: 4 hours/week and Practicals: 2 hours/week

Objective: the course is aimed at exposing the students to some basic notions in differential calculus.

Outcome: by the time students completes the course they realize wide ranging applications of the subject.

Unit – I

Successive differentiation:
Higher order derivatives, Calculation of the nth derivative, Some standard results, Determination of nth derivative of rational functions, The nth derivatives of the products of the powers of sines and cosines, Leibnitz's theorem, The nth derivative of the product of two functions.
Expansion of Functions:
Maclaurin's theorem, Taylor's theorem.
Mean Value Theorems:
Rolle's theorem, Lagrange's mean value theorem, Meaning of the sign of derivative, Graphs of hyperbolic functions, Cauchy's mean value theorem, Higher derivatives, Formal expansions of functions.

Unit – II

Indeterminate Forms:
Indeterminate forms, The indeterminate form $0/0$, The indeterminate form ∞/∞, The indeterminate form $0, \infty$, The indeterminate form $\infty - \infty$, The indeterminate forms 0^0, 1^∞, ∞^0.
Curvature and Evolutes:
Introduction, Definition of curvature, Length of arc as a function, Derivative of arc, Radius of curvature-cartesian equations, Newtonian method, Centre of curvature, Chord of curvature, Evolutes and involutes, Properties of the evolute.

Unit – III

Partial Differentiation – Homogeneous Functions – Total Derivative:
Introduction, Functions of two variables, Neighbourhood of a point (a, b), Continuity of a Function of two variables, continuity at a point, Limit of a function of two variables, Partial derivatives, Geometrical representation of a function of two variables, Homogeneous functions, Theorem on total differentials; composite functions; differentiation of composite functions; implicit functions.

Unit – IV

Maxima and Minima:
Maxima and minima of function of two variables, Lagrange's method of undetermined multipliers.

Asymptotes:
Definition, Determination of asymptotes, Working rules of determining asymptotes, Asymptotes by inspection, Intersection of a curve and its asymptotes, Asymptotes by expansion, Position of a curve with respect to an asymptote, Asymptotes in polar co-ordinates.
Envelopes:
One parameter family of curves, Consider the family of straight lines, Definition, Determination of envelope, Theorem, To prove that, in general, the envelope of a family of curves touches each member of the family, If A, B, C are functions of x and y and m is a parameter then the envelope of $Am^2+Bm+C = 0$ is $B^2 = 4AC$, Two parameters connected by a relation, When the equation to a family of curves is not given, but the law is given in accordance with which any member of the family can be determined, Envelopes of polar curves, Envelopes of normals(Evolutes).

Text: Shanti Narayan and Mittal, Differential Calculus

References: William Anthony Granville, Percey F Smith and William Raymond Longley, Elements of the Differential and integral calculus

Joseph Edwards,   Differential calculus for beginners

Smith and Minton,   Calculus

Elis Pine, How to Enjoy Calculus

Hari Kishan, Differential Calculus

2.1.1 Practicals Question Bank

Differential Calculus

Unit-I

1. If $u = \tan^{-1} x$ prove that

$$(1 + x^2)\frac{d^2u}{dx^2} + 2x\frac{du}{dx} = 0$$

   and hence determine the values of the derivatives of u when $x = 0$.

2. If $y = \sin(m \sin^{-1} x)$ show that

$$(1 - x^2)y_{n+2} = (2n + 1)xy_{n+1} + (n^2 - m^2)y_n$$

   and find $y_n(0)$

3. If U_n denotes the nth derivative of $\frac{Lx+M}{x^2-2Bx+C}$., prove

$$\frac{x^2 - 2Bx + C}{(n + 1)(n + 2)}U_{n+2} + \frac{2(x - B)}{n + 1}U_{n+1} + U_n = 0$$

4. If $y = x^2 e^x$, then

$$\frac{d^n y}{dx^n} = \frac{1}{2}n(n - 1)\frac{d^2 y}{dx^2} - n(n - 2)\frac{dy}{dx} + \frac{1}{2}(n - 1)(n - 2)y.$$

5. Determine the intervals in which the function

$$(x^4 + 6x^3 + 17x^2 + 32x + 32)e^{-x}$$

   is increasing or decreasing.

6. Separate the intervals in which the function

$$\frac{(x^2 + x + 1)}{(x^2 - x + 1)}$$

   is increasing or decreasing.

7. Show that if $x > 0$,

   (i) $x - \frac{x^2}{2} < \log(1 + x) < x - \frac{x^2}{2(1+x)}$.

   (ii) $x - \frac{x^2}{2} + \frac{x^3}{3(1+x)} < \log(1 + x) < x - \frac{x^2}{2} + \frac{x^3}{3}$.

8. Prove that

$$e^{ax} \sin bx = bx + abx^2 + \frac{3a^2b - b^3}{3!}x^3 + \ldots + \frac{(a^2 + b^2)^{\frac{1}{2}n}}{n!}x^n \sin(n \tan^{-1} \frac{b}{a}) + \ldots$$

9. Show that

$$\cos^2 x = 1 - x^2 + \frac{1}{3}x^4 - \frac{2}{45}x^6 \ldots$$

7

10. Show that

$$e^{m \tan^{-1} x} = 1 + mx + \frac{m^2}{2!} x^2 + \frac{m(m^2 - 2)}{3!} x^3 + \frac{m^2(m^2 - 8)}{4!} x^4 + \ldots\ldots$$

Unit-II

11. Find the radius of curvature at any point on the curves

   (i) $y = c \cosh(\frac{x}{c})$. (Catenary)
   (ii) $x = a(\cos t + t \sin t), y = a(\sin t - t \cos t)$.
   (iii) $x^{\frac{2}{3}} + y^{\frac{2}{3}} = a^{\frac{2}{3}}$. (Astroid)
   (iv) $x = \frac{(a \cos t)}{t}, y = \frac{(a \sin t)}{t}$.

12. Show that for the curve

$$x = a \cos \theta (1 + \sin \theta), y = a \sin \theta (1 + \cos \theta),$$

   the radius of curvature is a at the point for which the value of the parameter is $\frac{-\pi}{4}$.

13. Prove that the radius of curvature at the point $(-2a, 2a)$ on the curve $x^2 y = a(x^2 + y^2)$ is $-2a$.

14. Show that the radii of curvature of the curve

$$x = ae^\theta(\sin \theta - \cos \theta), y = ae^\theta(\sin \theta + \cos \theta)$$

   and its evolute at corresponding points are equal.

15. Show that the whole length of the evolute of the ellipse

$$\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$$

   is $4(\frac{a^2}{b} - \frac{b^2}{a})$.

16. Show that the whole length of the evolute of the astroid

$$x = a \cos^3 \theta, y = a \sin^3 \theta$$

   is $12a$

17. Evaluate the following:

   (i) $\lim_{x \to 0} \frac{xe^x - \log(1+x)}{x^2}$
   (ii) $\lim_{x \to 0} \frac{x \cos x - \log(1+x)}{x^2}$

   (iii) $\lim_{x \to 0} \frac{e^x \sin x - x - x^2}{x^2 + x \log(1-x)}$
   (iv) $\lim_{x \to 0} \{\frac{1}{x} - \frac{1}{x^2} \log(1 + x)\}$

18. If the limit of

$$\frac{\sin 2x + a \sin x}{x^8}$$

   as x tends to zero, be finite, find the value of a and the limit.

19. Determine the limits of the following functions:

(i) $x \log(\tan x), (x \to 0)$ **(ii)** $x \tan(\pi/2 - x), (x \to 0)$

(iii) $(a - x) \tan(\pi x/2a), (x \to 0)$

20. Determine the limits of the following functions:

(i) $\frac{e^x - e^{-x} - x}{x^2 \sin x}, (x \to 0)$ **(ii)** $\frac{\log x}{x^3}, (x \to \infty)$

(iii) $\frac{1 + x \cos x - \cosh x - \log(1+x)}{\tan x - x}, (x \to 0)$ **(iv)** $\frac{\log(1+x)\log(1-x) - \log(1-x^2)}{x^4}, (x \to 0)$

Unit-III

21. If $z = xy f(x/y)$ then show that
$$x\frac{\partial z}{\partial x} + y\frac{\partial z}{\partial y} = 2z$$

22. If $z(x + y) = x^2 + y^2$ then show that
$$\left(\frac{\partial z}{\partial x} - \frac{\partial z}{\partial y}\right)^2 = 4\left(1 - \frac{\partial z}{\partial x} - \frac{\partial z}{\partial y}\right)$$

23. If $z = 3xy - y^3 + (y^2 - 2x)^{\frac{3}{2}}$, verify that
$$\frac{\partial^2 z}{\partial x \partial y} = \frac{\partial^2 z}{\partial y \partial x} \quad and \quad \frac{\partial^2 z}{\partial x^2} - \frac{\partial^2 z}{\partial y^2} = \left(\frac{\partial^2 z}{\partial x \partial y}\right)^2$$

24. If $z = f(x + ay) + \varphi(x - ay)$, prove that
$$\frac{\partial^2 z}{\partial y^2} = a^2 \frac{\partial^2 z}{\partial x^2}.$$

25. If $u = \tan^{-1}\left(\frac{x^3 + y^3}{x - y}\right)$, find
$$x^2 \frac{\partial^2 u}{\partial x^2} + 2xy\frac{\partial^2 u}{\partial x \partial y} + y^2 \frac{\partial^2 u}{\partial y^2}.$$

26. If $f(x, y) = 0$, $\varphi(y, z) = 0$, show that
$$\frac{\partial f}{\partial y}.\frac{\partial \varphi}{\partial z}.\frac{dz}{dx} = \frac{\partial f}{\partial x}.\frac{\partial \varphi}{\partial y}.$$

27. If $x\sqrt{1 - y^2} + y\sqrt{1 - x^2} = a$, show that
$$\frac{d^2 y}{dx^2} = \frac{a}{(1 - x^2)^{\frac{3}{2}}}.$$

28. Given that $f(x, y) \equiv x^3 + y^3 - 3axy = 0$, show that
$$\frac{d^2 y}{dx^2}.\frac{d^2 x}{dy^2} = \frac{4a^6}{xy(xy - 2a^2)^3}.$$

9

29. If u and v are functions of x and y defined by

$$x = u + \mathrm{e}^{-v}\sin u, y = v + \mathrm{e}^{-v}\cos u,$$

prove that

$$\frac{\partial u}{\partial y} = \frac{\partial v}{\partial x}.$$

30. If $H = f(y - z, z - x, x - y)$; prove that,

$$\frac{\partial H}{\partial x} + \frac{\partial H}{\partial y} + \frac{\partial H}{\partial z} = 0.$$

Unit-IV

31. Find the minimum value of $x^2 + y^2 + z^2$ when

(i) $x + y + z = 3a$
(ii) $xy + yz + zx = 3a^2$
(iii) $xyz = a^3$

32. Find the extreme value of xy when

$$x^2 + xy + y^2 = a^2.$$

33. In a plane triangle, find the maximum value of

$$\cos A \cos B \cos C.$$

34. Find the envelope of the family of semi-cubical parabolas

$$y^2 - (x + a)^3 = 0.$$

35. Find the envelope of the family of ellipses

$$\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$$

where the parameters a,b are connected by the relation

$$a + b = c;$$

c, being a constant.

36. Show that the envelope of a circle whose centre lies on the parabola $y^2 = 4ax$ and which passes through its vertex is the cissoid

$$y^2(2a + x) + x^3 = 0.$$

37. Find the envelope of the family of the straight lines $\frac{x}{a} + \frac{y}{b} = 1$ where a,b are connected by the relation

(i) $a + b = c.$ **(ii)** $a^2 + b^2 = c^2.$ **(iii)** $ab = c^2.$

c is a constant.

38. Find the asymptotes of

$$x^3 + 4x^2y + 4xy^2 + 5x^2 + 15xy + 10y^2 - 2y + 1 = 0.$$

39. Find the asymptotes of
$$y^3 + x^3 + y^2 + x^2 - x + 1 = 0.$$

40. Find the asymptotes of the following curves

(i) $xy(x + y) = a(x^2 - a^2)$

(ii) $y^3 - x^3 + y^2 + x^2 + y - x + 1 = 0.$

2.2   Differential Equations

DSC-1B   **BS:204**

Theory: 4 credits and Practicals: 1 credits
Theory: 4 hours /week and Practicals: 2 hours /week

Objective: The main aim of this course is to introduce the students to the techniques of solving differential equations and to train to apply their skills in solving some of the problems of engineering and science.
Outcome: After learning the course the students will be equipped with the various tools to solve few types differential equations that arise in several branches of science.

Unit- I

Differential Equations of first order and first degree: Exact differential equations - Integrating Factors - Change in variables - Total Differential Equations - Simultaneous Total Differential Equations - Equations of the form $\frac{dx}{P} = \frac{dy}{Q} = \frac{dz}{R}$. Differential Equations first order but not of first degree: Equations Solvable for y - Equations Solvable for x - Equations that do not contain x (or y)- Clairaut's equation.

Unit- II

Higher order linear differential equations: Solution of homogeneous linear differential equations with constant coefficients - Solution of non-homogeneous differential equations $P(D)y = Q(x)$ with constant coefficients by means of polynomial operators when $Q(x) = be^{ax}, b\sin ax/b\cos ax, bx^k, Ve^{ax}$.

Unit- III

Method of undetermined coefficients - Method of variation of parameters - Linear differential equations with non constant coefficients - The Cauchy - Euler Equation.

Unit- IV

Partial Differential equations- Formation and solution- Equations easily integrable - Linear equations of first order - Non linear equations of first order - Charpit's method - Homogeneous linear partial differential equations with constant coefficient - Non homogeneous linear partial differential equations - Separation of variables.

Text:

- Zafar Ahsan,*Differential Equations and Their Applications*

References:

- Frank Ayres Jr, *Theory and Problems of Differential Equations.*

- Ford, L.R ; *Differential Equations.*

- Daniel Murray, *Differential Equations.*

- S. Balachandra Rao, *Differential Equations with Applications and Programs.*

- Stuart P Hastings, J Bryce McLead; *Classical Methods in Ordinary Differential Equations.*

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2.2.1 Practicals Question Bank

Differential Equations

Unit-I

Solve the following differential equations:

1. $y\prime = \sin(x+y) + \cos(x+y)$

2. $xdy - ydx = a(x^2 + y^2)dy$

3. $x^2ydx - (x^3 + y^3)dy = 0$

4. $(y+z)dx + (x+z)dy + (x+y)dz = 0$

5. $y\sin 2xdx - (1 + y^2 + \cos^2 x)dy = 0$

6. $y + px = p^2x^4$

7. $yp^2 + (x-y)p - x = 0$

8. $\frac{dx}{y-zx} = \frac{dy}{yz+x} = \frac{dz}{(x^2+y^2)}$

9. $\frac{dx}{x(y^2-z^2)} = \frac{dy}{y(z^2-x^2)} = \frac{dz}{z(x^2-y^2)}$

10. Use the transformation $x^2 = u$ and $y^2 = v$ to solve the equation $axyp^2 + (x^2 - ay^2 - b)p - xy = 0$

Unit-II

Solve the following differential equations:

11. $D^2y + (a+b)Dy + aby = 0$

12. $D^3y - D^2y - Dy - 2y = 0$

13. $D^3y + Dy = x^2 + 2x$

14. $y\prime\prime + 3y\prime + 2y = 2(e^{-2x} + x^2)$

15. $y^{(5)} + 2y\prime\prime\prime + y\prime = 2x + \sin x + \cos x$

16. $(D^2 + 1)(D^2 + 4)y = \cos\frac{x}{2}\cos\frac{3x}{2}$

17. $(D^2 + 1)y = \cos x + xe^{2x} + e^x \sin x$

18. $y\prime\prime + 3y\prime + 2y = 12e^x$

19. $y\prime\prime - y = \cos x$

20. $4y\prime\prime - 5y\prime = x^2e^x$

Unit-III

Solve the following differential equations:

21. $y'' + 3y' + 2y = xe^x$

22. $y'' + 3y' + 2y = \sin x$

23. $y'' + y' + y = x^2$

24. $y'' + 2y' + y = x^2 e^{-x}$

25. $x^2 y'' - xy' + y = 2\log x$

26. $x^4 y''' + 2x^3 y'' - x^2 y' + xy = 1$

27. $x^2 y'' - xy' + 2y = x\log x$

28. $x^2 y'' - xy' + 2y = x$

Use the reduction of order method to solve the following homogeneous equation whose one of the solution is given:

29. $y'' - \frac{2}{x} y' + \frac{2}{x^2} y = 0, y_1 = x$

30. $(2x^2 + 1)y'' - 4xy' + 4y = 0, y_1 = x$

Unit-IV

31. Form the partial differential equation, by eliminating the arbitrary constants from $z = (x^2 + a)(y^2 + b)$.

32. Find the differential equation of the family of all planes whose members are all at a constant distance r from the origin.

33. Form the differential equation by eliminating arbitrary function F from $F(x^2 + y^2, z - xy) = 0$.

Solve the following differential equations:

34. $x^2(y - z)p + y^2(z - x)q = z^2(x - y)$

35. $x(z^2 - y^2)p + y(x^2 - z^2)q = z(y^2 - x^2)$

36. $(p^2 - q^2)z = x - y$

37. $z = px + qy + p^2 q^2$

38. $z^2 = pqxy$

39. $z^2(p^2 + q^2) = x^2 + y^2$

40. $r + s - 6t = \cos(2x + y)$

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<div align="center">

Theory: 4 credits and Practical 1 credit
Theory: 4 hours/week and Practicals : 2 hours/ week

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Objective : The course is aimed at exposing the students to the foundations of analysis which will be useful in understanding various physical phenomena.

Outcome: After the completion of the course students will be in a position to appreciate beauty and applicability of the course.

Unit- I

Sequences- Limits of sequences- A Discussion about Proofs- Limit Theorems for Sequences – Monotone Sequences and Cauchy Sequences

Unit- II

Subsequences- Lim sup's and Lim inf's Series- Alternating Series and Integrals Tests. Continuity : Continuous functions- Properties of Continuous functions.

Unit – III

Sequence and Series of Functions: Power Series- Uniform Convergence – More on Uniform Convergence- Differentiation and Integration of Power Series (Theorems in this section without Proofs)

Unit – IV

Integration : The Riemann Integral- Properties of Riemann Integral- Fundamental Theorem of Calculus.

Text : Kenneth A Ross, Elementary Analysis- The Theory of Calculus
References :
William F.Trench: Introduction to Real Analysis

Lee Larson: Introduction to Real Analysis

Shanti Narayan and Mittal: Mathematical Analysis

Brian S. Thomson, Judith B. Bruckner, Andrew M. Bruckner: Elementary Real Analysis

Sudhir R. Ghorpade Balmohan V. Limaye: A Course in Calculus and Real Analysis

Real Analysis

Unit-I

1. For each sequence below, determine whether it converges and, if it converges, give its limit. No proofs are required.

   (a) $a_n = \frac{n}{n+1}$

   (b) $b_n = \frac{n^2+3}{n^2-3}$

   (c) $c_n = 2^{-n}$

   (d) $t_n = 1 + \frac{2}{n}$

   (e) $x_n = 73 + (-1)^n$

   (f) $s_n = (2)^{\frac{1}{n}}$

2. Determine the limits of the following sequences, and then prove your claims.

   (a) $a_n = \frac{n}{n^2+1}$

   (b) $b_n = \frac{7n-19}{3n+7}$

   (c) $c_n = \frac{4n+3}{7n-5}$

   (d) $d_n = \frac{2n+4}{5n+2}$

   (e) $s_n = \frac{1}{n}\sin n$

3. Suppose $\lim a_n = a$, $\lim b_n = b$, and $s_n = \frac{a_n^3+4a_n}{b_n^2+1}$. Prove $\lim s_n = \frac{a^3+4a}{b^2+1}$ carefully, using the limit theorems.

4. Let $x_1 = 1$ and $x_{n+1} = 3x_n^2$ for $n \geq 1$.

   (a) Show if $a = \lim x_n$, then $a = \frac{1}{3}$ or $a = 0$.

   (b) Does $\lim x_n$ exist? Explain.

   (c) Discuss the apparent contradiction between parts (a) and (b).

5. Which of the following sequences are increasing? decreasing? bounded?

   (a) $\frac{1}{n}$

   (b) $\frac{(-1)^n}{n^2}$

   (c) n^5

   (d) $\sin(\frac{n\pi}{7})$

   (e) $(-2)^n$

   (f) $\frac{n}{3^n}$

6. Let (s_n) be a sequence such that $|s_{n+1} - s_n| < 2^{-n}$ for all $n \in \mathbb{N}$. Prove (s_n) is a Cauchy sequence and hence a convergent sequence.

7. Let (s_n) be an increasing sequence of positive numbers and define $\sigma_n = \frac{1}{n}(s_1 + s_2 + ... + s_n)$. Prove (σ_n) is an increasing sequence.

8. Let $t_1 = 1$ and $t_{n+1} = [1 - \frac{1}{4n^2}].t_n$ for $n \geq 1$.

   (a) Show $\lim t_n$ exists.

   (b) What do you think $\lim t_n$ is?

9. Let $t_1 = 1$ and $t_{n+1} = [1 - \frac{1}{(n+1)^2}].t_n$ for all $n \geq 1$.

   (a) Show $\lim t_n$ exists.
   (b) What do you think $\lim t_n$ is?
   (c) Use induction to show $t_n = \frac{n+1}{2n}$.
   (d) Repeat part (b).

10. Let $s_1 = 1$ and $s_{n+1} = \frac{1}{3}(s_n + 1)$ for $n \geq 1$.

   (a) Find s_2, s_3 and s_4.
   (b) Use induction to show $s_n > \frac{1}{2}$ for all n.
   (c) Show (s_n) is a decreasing sequence.
   (d) Show $\lim s_n$ exists and find $\lim s_n$.

Unit-II

11. Let $a_n = 3 + 2(-1)^n$ for $n \in \mathbb{N}$.

   (a) List the first eight terms of the sequence (a_n).
   (b) Give a subsequence that is constant [takes a single value].
        Specify the selection function σ.

12. Consider the sequences defined as follows:

   $a_n = (-1)^n$, $b_n = \frac{1}{n}$, $c_n = n^2$, $d_n = \frac{6n+4}{7n-3}$.

   (a) For each sequence, give an example of a monotone subsequence.
   (b) For each sequence, give its set of subsequential limits.
   (c) For each sequence, give its $\lim \sup$ and $\lim \inf$.
   (d) Which of the sequences converges? diverges to $+\infty$? diverges to $-\infty$?
   (e) Which of the sequences is bounded?

13. Prove $\lim \sup |s_n| = 0$ if and only if $\lim s_n = 0$.

14. Let (s_n) and (t_n) be the following sequences that repeat in cycles of four:

$$(s_n) = (0, 1, 2, 1, 0, 1, 2, 1, 0, 1, 2, 1, 0, 1, 2, 1, 0, ...)$$

$$(t_n) = (2, 1, 1, 0, 2, 1, 1, 0, 2, 1, 1, 0, 2, 1, 1, 0, 2, ...)$$

   Find

   (a) $\lim \inf s_n + \lim \inf t_n$,   (b) $\lim \inf(s_n + t_n)$,

   (c) $\lim \inf s_n + \lim \sup t_n$,   (d) $\lim \sup(s_n + t_n)$,

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(e) $\limsup s_n + \limsup t_n$,   **(f)** $\liminf(s_n t_n)$,

(g) $\limsup(s_n t_n)$.

15. Determine which of the following series converge. Justify your answers.

(a) $\sum \frac{n^4}{2^n}$ **(b)** $\sum \frac{2^n}{n!}$

(c) $\sum \frac{n^2}{3^n}$ **(d)** $\sum \frac{n!}{n^4+3}$

(e) $\sum \frac{\cos^2 n}{n^2}$ **(f)** $\sum_{n=2}^{\infty} \frac{1}{\log n}$

16. Prove that if $\sum a_n$ is a convergent series of nonnegative numbers and $p > 1$, then $\sum a_n^p$ converges.

17. Show that if $\sum a_n$ and $\sum b_n$ are convergent series of nonnegative numbers, then $\sum \sqrt{a_n b_n}$ converges.
    Hint: Show $\sqrt{a_n b_n} \leq a_n + b_n$ for all n.

18. We have seen that it is often a lot harder to find the value of an infinite sum than to show it exists. Here are some sums that can be handled.

    (a) Calculate $\sum_{n=1}^{\infty} (\frac{2}{3})^n$ and $\sum_{n=1}^{\infty} (-\frac{2}{3})^n$.
    (b) Prove $\sum_{n=1}^{\infty} \frac{1}{n(n+1)} = 1$. Hint: Note that $\sum_{k=1}^{n} \frac{1}{k(k+1)} = \sum_{k=1}^{n} [\frac{1}{k} - \frac{1}{k+1}]$.
    (c) Prove $\sum_{n=1}^{\infty} \frac{n-1}{2^{n+1}} = \frac{1}{2}$. Hint: Note $\frac{k-1}{2^{k+1}} = \frac{k}{2^k} - \frac{k+1}{2^{k+1}}$.
    (d) Use (c) to calculate $\sum_{n=1}^{\infty} \frac{n}{2^n}$.

19. Determine which of the following series converge. Justify your answers.

    (a) $\sum_{n=2}^{\infty} \frac{1}{\sqrt{n} \log n}$ **(b)** $\sum_{n=2}^{\infty} \frac{\log n}{n}$

    (c) $\sum_{n=4}^{\infty} \frac{1}{n(\log n)(\log \log n)}$ **(d)** $\sum_{n=2}^{\infty} \frac{\log n}{n^2}$

20. Show $\sum_{n=2}^{\infty} \frac{1}{n(\log n)^p}$ converges if and only if $p > 1$.

UNIT-III

21. For each of the following power series, find the radius of convergence and determine the exact interval of convergence.

    (a) $\sum n^2 x^n$ **(b)** $\sum (\frac{x}{n})^n$

    (c) $\sum (\frac{2^n}{n^2}) x^n$ **(d)** $\sum (\frac{n^3}{3^n}) x^n$

    (e) $\sum (\frac{2^n}{n!}) x^n$ **(f)** $\sum \left(\frac{1}{(n+1)^2 2^n} \right) x^n$

(g) $\sum(\frac{3^n}{n.4^n})x^n$

(h) $\sum \left(\frac{(-1)^n}{n^2.4^n}\right)x^n$

22. For $n = 0, 1, 2, 3, ...$, let $a_n = \left[\frac{4+2(-1)^n}{5}\right]^n$.

    (a) Find $\limsup(a_n)^{1/n}$, $\liminf(a_n)^{1/n}$, $\limsup|\frac{a_{n+1}}{a_n}|$ and $\liminf|\frac{a_{n+1}}{a_n}|$.

    (b) Do the series $\sum a_n$ and $\sum(-1)^n a_n$ converge? Explain briefly.

23. Let $f_n(x) = \frac{1+2\cos^2 nx}{\sqrt{n}}$. Prove carefully that (f_n) converges uniformly to 0 on $\mathbb{R}$.

24. Prove that if $f_n \to f$ uniformly on a set S, and if $g_n \to g$ uniformly on S, then $f_n + g_n \to f + g$ uniformly on S.

25. Let $f_n(x) = \frac{x^n}{n}$. Show (f_n) is uniformly convergent on $[-1, 1]$ and specify the limit function.

26. Let $f_n(x) = \frac{n+\cos x}{2n+\sin^2 x}$ for all real numbers x.

    (a) Show (f_n) converges uniformly on $\mathbb{R}$. Hint: First decide what the limit function is; then show (f_n) converges uniformly to it.

    (b) Calculate $\lim_{n\to\infty} \int_2^7 f_n(x)dx$. Hint: Don't integrate f_n.

27. Show $\sum_{n=1}^{\infty} \frac{1}{n^2} \cos nx$ converges uniformly on $\mathbb{R}$ to a continuous function.

28. Show $\sum_{n=1}^{\infty} \frac{x^n}{n^2 2^n}$ has radius of convergence 2 and the series converges uniformly to a continuous function on $[-2, 2]$.

29. **(a)** Show $\sum \frac{x^n}{1+x^n}$ converges for $x \in [0, 1)$

    (b) Show that the series converges uniformly on $[0, a]$ for each a, $0 < a < 1$.

30. Suppose $\sum_{k=1}^{\infty} g_k$ and $\sum_{k=1}^{\infty} h_k$ converge uniformly on a set S. Show $\sum_{k=1}^{\infty}(g_k + h_k)$ converges uniformly on S.

UNIT-IV

31. Let $f(x) = x$ for rational x and $f(x) = 0$ for irrational x.

    (a) Calculate the upper and lower Darboux integrals for f on the interval $[0, b]$.

    (b) Is f integrable on $[0, b]$?

32. Let f be a bounded function on $[a, b]$. Suppose there exist sequences (U_n) and (L_n) of upper and lower Darboux sums for f such that $\lim(U_n - L_n) = 0$. Show f is integrable and $\int_a^b f = \lim U_n = \lim L_n$.

33. A function f on $[a, b]$ is called a step function if there exists a partition $P = \{a = u_0 < u_1 < ... < u_m = b\}$ of $[a, b]$ such that f is constant on each interval (u_{j-1}, u_j), say $f(x) = c_j$ for x in (u_{j-1}, u_j).

    (a) Show that a step function f is integrable and evaluate $\int_a^b f$.

    (b) Evaluate the integral $\int_0^4 P(x)dx$ for the postage-stamp function.

34. Show $|\int_{-2\pi}^{2\pi} x^2 \sin^8(e^x)dx| \leq \frac{16\pi^3}{3}$.

35. Let f be a bounded function on $[a, b]$, so that there exists $B > 0$ such that $|f(x)| \leq B$ for all $x \in [a, b]$.

   (a) Show
   $$U(f^2, P) - L(f^2, P) \leq 2B[U(f, P) - L(f, P)]$$
   for all partitions P of $[a, b]$. Hint: $f(x)^2 - f(y)^2 = [f(x) + f(y)].[f(x) - f(y)]$

   (b) Show that if f is integrable on $[a, b]$, then f^2 also is integrable on $[a, b]$.

36. Calculate

   (a) $\lim_{x \to 0} \frac{1}{x} \int_0^x e^{t^2} dt$ **(b)** $\lim_{h \to 0} \frac{1}{h} \int_3^{3+h} e^{t^2} dt$.

37. Show that if f is a continuous real-valued function on $[a, b]$ satisfying $\int_a^b f(x)g(x)dx = 0$ for every continuous function g on $[a, b]$, then $f(x) = 0$ for all x in $[a, b]$.

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Skill Enhancement Course – I - FOR ALL SCIENCE FACULTY B.Sc., II YEAR, III Semester
DEPARTMENTS

COMPUTER BASICS AND AUTOMATION

Credits: 2

Theory: 2 hours/week   **Marks - 50**

Unit –I BASICS OF COMPUTERS

1.2 Introduction to computers- Computer parts and Characteristics of computer.
1.2.Generations of Computers, Classification of Computers, Basic computer organization.
1.3.Applications of Computer. Input and Output Devices- Input Devices, Output Devices.
1.4. Soft Copy Devices, Hard Copy Devices. Computer Memory and Processors.

Unit – II OFFICE AUTOMATION

1.1.Desktop - Word - Creation of files and folders, recycle Bin.
1.2.Web browser, Office Automation System, need for Office Automation System.
1.3. Excel – Tables, graphs
1.4.PowerPoint, Access to files and folders.

Text Book:
   1. Reema Thareja "Fundamentals of Computers" Oxford University Press 2015.

References:
   1. A. Goel, Computer Fundamentals, Pearson Education, 2010.
   2. Spoken Tutorial on "Linux (Ubuntu), LibreOffice (Writer, Calc, Impress), Firefox", as E-resource for Learning. http://spoken-tutorial.org

2.8   Algebra

DSC-1D   **BS:404**

Theory: 4 credits and Practicals: 1 credits
Theory: 4 hours /week and Practicals: 2 hours /week

Objective: The course is aimed at exposing the students to learn some basic algebraic structures like groups, rings etc.

   Outcome: On successful completion of the course students will be able to recognize algebraic structures that arise in matrix algebra, linear algebra and will be able to apply the skills learnt in understanding various such subjects.

Unit- I

Groups: Definition and Examples of Groups- Elementary Properties of Groups-Finite Groups; Subgroups -Terminology and Notation -Subgroup Tests - Examples of Subgroups Cyclic Groups: Properties of Cyclic Groups - Classification of Subgroups Cyclic Groups-Permutation Groups: Definition and Notation -Cycle Notation-Properties of Permutations -A Check Digit Scheme Based on D_5.

Unit- II

Isomorphisms ; Motivation- Definition and Examples -Cayley's Theorem Properties of Isomorphisms -Automorphisms-Cosets and Lagrange's Theorem Properties of Cosets 138 - Lagrange's Theorem and Consequences-An Application of Cosets to Permutation Groups -The Rotation Group of a Cube and a Soccer Ball -Normal Subgroups and Factor Groups ; Normal Subgroups-Factor Groups -Applications of Factor Groups -Group Homomorphisms - Definition and Examples -Properties of Homomorphisms -The First Isomorphism Theorem.

Unit- III

Introduction to Rings: Motivation and Definition -Examples of Rings -Properties of Rings -Subrings -Integral Domains : Definition and Examples –Characteristics of a Ring -Ideals and Factor Rings; Ideals -Factor Rings -Prime Ideals and Maximal Ideals.

Unit- IV

Ring Homomorphisms: Definition and Examples-Properties of Ring- Homomorphisms -The Field of Quotients Polynomial Rings: Notation and Terminology.
Text:

- Joseph A Gallian, *Contemporary Abstract algebra (9th edition)*

References:

- Bhattacharya, P.B Jain, S.K.; and Nagpaul, S.R,*Basic Abstract Algebra*

- Fraleigh, J.B, *A First Course in Abstract Algebra.*

- Herstein, I.N, *Topics in Algebra*

- Robert B. Ash, *Basic Abstract Algebra*

- I Martin Isaacs, *Finite Group Theory*

- Joseph J Rotman, *Advanced Modern Algebra*

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Algebra
Unit-I

1. Show that $\{1, 2, 3\}$ under multiplication modulo 4 is not a group but that $\{1, 2, 3, 4\}$ under multiplication modulo 5 is a group.

2. Let G be a group with the property that for any x, y, z in the group, $xy = zx$ implies $y = z$. Prove that G is Abelian.

3. Prove that the set of all 3×3 matrices with real entries of the form

$$\begin{pmatrix} 1 & a & b \\ 0 & 1 & c \\ 0 & 0 & 1 \end{pmatrix}$$

   is a group under multiplication.

4. Let G be the group of polynomials under addition with coefficients from Z_{10}. Find the orders of $f(x) = 7x^2 + 5x + 4, g(x) = 4x^2 + 8x + 6$, and $f(x) + g(x)$

5. If a is an element of a group G and $|a| = 7$, show that a is the cube of some element of G.

6. Suppose that $\langle a \rangle, \langle b \rangle$ and $\langle c \rangle$ are cyclic groups of orders 6, 8, and 20, respectively. Find all generators of $\langle a \rangle, \langle b \rangle$, and $\langle c \rangle$.

7. How many subgroups does Z_{20} have? List a generator for each of these subgroups.

8. Consider the set $\{4, 8, 12, 16\}$. Show that this set is a group under multiplication modulo 20 by constructing its Cayley table. What is the identity element? Is the group cyclic? If so, find all of its generators.

9. Prove that a group of order 4 cannot have a subgroup of order 3.

10. Determine whether the following permutations are even or odd.
    a. (135)
    b. (1356)
    c. (13567)
    d. (12)(134)(152)
    e. (1243)(3521).

Unit-II

11. Show that the mapping $a \longrightarrow \log_{10} a$ is an isomorphism from R^+ under multiplication to R under addition.

12. Show that the mapping $f(a + bi) = a - bi$ is an automorphism of the group of complex numbers under addition.

13. Find all of the left cosets of $\{1, 11\}$ in $U(30)$.

14. Let C^* be the group of nonzero complex numbers under multiplication and let $H = \{a + bi \in C^*/a^2 + b^2 = 1\}$. Give a geometric description of the coset $(3 + 4i)H$. Give a geometric description of the coset $(c + di)H$.

15. Let $H = \left\{ \begin{pmatrix} a & b \\ 0 & d \end{pmatrix} /a, b, d \in R, ad \neq 0 \right\}$. Is H a normal subgroup of $GL(2, R)$?

16. What is the order of the factor group $\frac{Z_{60}}{\langle 5 \rangle}$?

17. Let $G = U(16), H = \{1, 15\}$, and $K = \{1, 9\}$. Are H and K isomorphic? Are G/H and G/K isomorphic?

18. Prove that the mapping from R under addition to $GL(2, R)$ that takes x to

$$\begin{bmatrix} cosx & sinx \\ -sinx & cosx \end{bmatrix}$$

    is a group homomorphism. What is the kernel of the homomorphism?

19. Suppose that f is a homomorphism from $Z30$ to $Z30$ and $Kerf = \{0, 10, 20\}$. If $f(23) = 9$, determine all elements that map to 9.

20. How many Abelian groups (up to isomorphism) are there
    a. of order 6?
    b. of order 15?
    c. of order 42?
    d. of order pq, where p and q are distinct primes?
    e. of order pqr, where p, q, and r are distinct primes?

Unit-III

21. Let $M_2(Z)$ be the ring of all 2×2 matrices over the integers and let $R = \left\{ \begin{pmatrix} a & a \\ b & b \end{pmatrix} /a, b \in Z \right\}$
    Prove or disprove that R is a subring of $M_2(Z)$.

22. Suppose that a and b belong to a commutative ring R with unity. If a is a unit of R and $b^2 = 0$, show that $a + b$ is a unit of R.

23. Let n be an integer greater than 1. In a ring in which $x^n = x$ for all x, show that $ab = 0$ implies $ba = 0$.

24. List all zero-divisors in Z_{20}. Can you see a relationship between the zero-divisors of Z_{20} and the units of Z_{20}?

25. Let a belong to a ring R with unity and suppose that $a^n = 0$ for some positive integer n. (Such an element is called nilpotent.) Prove that $1 - a$ has a multiplicative inverse in R.

26. Let d be an integer. Prove that $Z[\sqrt{d}] = \{a + b\sqrt{d}/a, b \in Z\}$ is an integral domain.

27. Show that Z_n has a nonzero nilpotent element if and only if n is divisible by the square of some prime.

28. Find all units, zero-divisors, idempotents, and nilpotent elements in $Z_3 \oplus Z_6$.

29. Find all maximal ideals in
    a. Z_8.
    b. Z_{10}.
    c. Z_{12}.
    d. Z_n.

30. Show that $R[x]/\langle x^2 + 1 \rangle$ is a field.

Unit-IV

31. Prove that every ring homomorphism f from Z_n to itself has the form $f(x) = ax$, where $a^2 = a$.

32. Prove that a ring homomorphism carries an idempotent to an idempotent.

33. In Z, let $A = \langle 2 \rangle$ and $B = \langle 8 \rangle$. Show that the group A/B is isomorphic to the group Z_4 but that the ring A/B is not ring-isomorphic to the ring Z_4.

34. Show that the number $9,897,654,527,609,805$ is divisible by 99.

35. Show that no integer of the form $111,111,111,...,111$ is prime.

36. Let $f(x) = 4x^3 + 2x^2 + x + 3$ and $g(x) = 3x^4 + 3x^3 + 3x^2 + x + 4$, where $f(x), g(x) \in Z_5[x]$. Compute $f(x) + g(x)$ and $f(x).g(x)$.

37. Let $f(x) = 5x^4 + 3x^3 + 1$ and $g(x) = 3x^2 + 2x + 1$ in $Z_7[x]$. Determine the quotient and remainder upon dividing $f(x)$ by $g(x)$.

38. Let $f(x)$ belong to $Z_p[x]$. Prove that if $f(b) = 0$, then $f(b^p) = 0$.

39. Is the mapping from Z_{10} to Z_{10} given by $x \to 2x$ a ring homomorphism?

40. Determine all ring homomorphisms from Z to Z.

Skill Enhancement Course - II- B.Sc., II YEAR, IV Semester
FOR ALL SCIENCE FACULTY DEPARTMENTS
MULTIMEDIA AND APPLICATIONS

Credits: 2 Theory: 2 hours/week
Marks - 50

Unit - I FONTS AND IMAGES

1.1.Multimedia: Introduction to multimedia, components, uses of multimedia, Multimedia applications, virtual reality.

1.2.Text: Fonts and Faces, Using Text in Multimedia, Font Editing and Design Tools, Hypermedia & Hypertext.

1.3.Images: Still Images – bitmaps, vector drawing, 3D drawing and rendering, natural, light and colors, computerized colors, color palettes, image file formats.

Unit – II AUDIO AND VIDEO

2.1.Sound: Digital Audio, MIDI Audio, MIDI vs Digital Audio, Audio File Formats.

2.2 Video: How video works, analog video, digital video, video file formats, video shooting and editing.

2.3 Animation: Principle of animations, animation techniques, animation file formats.

References:

1. Tay Vaughan, ―Multimedia: Making it work‖, TMH, Eighth edition.2011

2. Ralf Steinmetz and KlaraNaharstedt, ―Multimedia: Computing, Communications Applications‖, Pearson.2012

3. Keyes, ―Multimedia Handbook‖, TMH,2000.
4. K. Andleigh and K. Thakkar, ―Multimedia System Design‖, PHI.2013

CURRICULUM FOR MATHEMATICS
IN UNDER GRADUATE DEGREE PROGRAMME

CBCS SYLLABUS SCHEDULE 2016 - 2017
SEMESTER - V

By

Chairperson

Board of Studies

Department of Mathematics

Kakatiya University, Warangal.

Skill Enhancement Course - III
B.Sc., III Year, V Semester
For All Science Faculty Departments
Verbal Reasoning For Aptitude Test
Credits: 2

Theory: 2 hours/week   **Marks - 50**
UNIT - I - Numbers And Diagrams

1.1. **Series Completion:** Number series, Alphabet Series.
1.2. **Series Completion:** Alpha Numeric Series, Continuous Pattern Series.
1.3. **Logical Venn Diagrams**.
1.4. **Mathematical Operations:** Problem solving by substitution, Interchange of signs and numbers.

UNIT - II - Arithematical Reasoning

2.1. Mathematical Operations: Deriving the appropriate conclusions.
2.2. Arithmetical Reasoning: Calculation based problems, Data based problems .
2.3. Arithmetical Reasoning: Problems on ages, Venn diagram based problems.
2.4. Cause and Effect Reasoning.

TEXT: *A Modern Approach to Verbal and Non-Verbal Reasoning* by Dr.R.S. Aggarwal

Kakatiya University
B.Sc. Mathematics, V Semester
LINEAR ALGEBRA

DSC-1E
BS:503

Theory: 3 credits and Practicals: 1 credits
Theory: 3 hours/week and Practicals: 2 hours/week

Objective: The students are exposed to various concepts like vector spaces, bases, dimension, Eigen values etc.

Outcome: After completion this course students appreciate its interdisciplinary nature.

UNIT-I

Vector Spaces : Vector Spaces and Subspaces -Null Spaces, Column Spaces, and Linear Transformations -Linearly Independent Sets; Bases -Coordinate Systems

UNIT-II

The Dimension of a Vector Space, Rank-Change of Basis - Eigenvalues and Eigenvectors .

UNIT-III

The Characteristic Equation, Diagonalization -Eigenvectors and Linear Transformations -Complex Eigenvalues - Applications to Differential Equations .

UNIT-IV

Orthogonality and Least Squares : Inner Product, Length, and Orthogonality -Orthogonal Sets.

TEXT: David C Lay,*Linear Algebra and its Applications 4e*
References:

- S Lang, *Introduction to Linear Algebra*

- Gilbert Strang ,*Linear Algebra and its Applications*

- Stephen H. Friedberg, Arnold J. Insel, Lawrence E. Spence; *Linear Algebra*

- Kuldeep Singh; *Linear Algebra*

- Sheldon Axler;*Linear Algebra Done Right*

Practical Question Bank

UNIT-I

(1) Let H be the set of all vectors of the form $\begin{bmatrix} -2t \\ 5t \\ 3t \end{bmatrix}$. Find a vector v in R^3 such that $H = Span\{v\}$.

   Why does this show that H is a subspace of R^3?.

(2) Let V be the first quadrant in the xy-plane; that is let $V = \{\begin{bmatrix} x \\ y \end{bmatrix} x \geq 0, y \geq 0\}$

   (a). If u and v are in V is $u + v$ in V ? why?
   (b) Find a specific vector u in V and a specific scalar c such that

(3) Let $v_1 = \begin{bmatrix} 1 \\ -2 \\ 3 \end{bmatrix}$ and $v_2 = \begin{bmatrix} -2 \\ 7 \\ -9 \end{bmatrix}$. Determine if $\{v_1, v_2\}$ is a basic for R^3. Is $\{v_1, v_2\}$ a basis for
   R^2.

(4) The set $B = \{1 + t^2, t + t^2, 1 + 2t + t^2\}$ is a basis for P_2. Find the coordinate vector of $p(t) = 1 + 4t + 7t^2$ relative to B.

(5) set $B = \{1 - t^2, t - t^2, 2 - t + t^2\}$ is a basis for P_2. Find the coordinate vector of $p(t) = 1 + 3t - 6t^2$ relative to B.

(6) The vector $v_1 = \begin{bmatrix} 1 \\ -3 \end{bmatrix}, v_2 = \begin{bmatrix} 2 \\ -8 \end{bmatrix}, v_3 = \begin{bmatrix} -3 \\ 7 \end{bmatrix}$ $spanR^2$ but do not form a basis . Find two
   different ways to express $\begin{bmatrix} 1 \\ 1 \end{bmatrix}$ as a linear combination of v_1, v_2, v_3

(7) Let V be the set of all real - valued functions defined on a set D Then $f + g$ is the function whose value at t in the domain D is $f(t) + g(t)$ and for any scalar$c$ and for any f in V, the scalar multiple cf is the function whose value at t is $cf(t)$.

(8) The vector space $\mathbf{R}^2$ is not a subspace of $\mathbf{R}^3$ because $\mathbf{R}^2$ is not even a subset of $\mathbf{R}^3$.(The vectors in $\mathbf{R}^3$ all have three entries,where as the vectors in $\mathbf{R}^2$ have only two.) The set

   $\mathbf{H} = \{ \begin{pmatrix} s \\ t \\ 0 \end{pmatrix}$:is s and t are real$\}$ is a subset of $\mathbf{R}^3$ that "looks" and " acts" like $\mathbf{R}^2$,although it

   is logically distinct from $\mathbf{R}^2$. Show that H is a subspace of $\mathbf{R}^3$.

(9) The differential equation $y'' + \omega^2 y = 0$ where ω is a constant,is used to describe a variety of physical system, such as the vibration of a weighted spring,the movement of a pendulum,and the voltage in an inductance - capacitance electrical ciruit. Then show that set of solutions of given differential equation is precisely kernel of the linear transformation that maps a function $y = f(t)$ into the function $y'' + \omega^2 y = 0$.

(10) Let $V_1 = \begin{pmatrix} 3 \\ 0 \\ -6 \end{pmatrix}, v_2 = \begin{pmatrix} -4 \\ 1 \\ 7 \end{pmatrix}, v_3 = \begin{pmatrix} -2 \\ 1 \\ 5 \end{pmatrix}$ Determine if $\{v_1, v_2, v_3\}$ is a basis for $\mathbf{R}^3$

UNIT-II

(11) Find the dimension of the subspace of all vectors in R^3 whose first and third entries are equal

(12) Find the dimension of the subspace H of R^2 spanned by $\begin{bmatrix} 1 \\ -5 \end{bmatrix} \begin{bmatrix} -2 \\ 10 \end{bmatrix} \begin{bmatrix} -3 \\ 15 \end{bmatrix}$

(13) Let H be an n dimensional subspace of an n dimensional vectorspace V. Show that $H=V$.

(14) Explain why the space P of all polynomials is an infinite dimensional space

(15) If a 4x7 matrix A has rank 3 ,find dim Null$A$,dim Row A and rank A^T

(16) If a 7X5 matrix A has rank 2 ,find dim Null$A$,dim Row A and rank A^T

(17) If the null space of an 8x5 matrix A is 3 dimensional,what is the dimension of the row space of A?

(18) If A is a 3x7 matrix what is the smallest possible dimension of Null A ?

(19) Let $U = \begin{bmatrix} 1 \\ 2 \end{bmatrix}$ find V in R^3 such that $\begin{bmatrix} 1 & -3 & 4 \\ 2 & -6 & 8 \end{bmatrix} = UV^T$

(20) If A is a 7x5 matrix,what is the largest possible rank of A ? If A is a 5x7 matrix,what is the largest possible rank of A ? Explain your answers.

UNIT-III

(21) Without calculations list $rank(A)$ and $dim(A)$, $Nul(A)$
if A= $\begin{bmatrix} 2 & 6 & -6 & -6 & 3 & 6 \\ -2 & -3 & 6 & -3 & 0 & -6 \\ 4 & 9 & 12 & 9 & 3 & 12 \\ -2 & 3 & 6 & 3 & 3 & -6 \end{bmatrix}$

(22) Use a property of determinants to show A and A^T have same characteristic polynomial.

(23) Find the characteristic equation of
A= $\begin{bmatrix} 5 & -2 & 6 & -1 \\ 0 & 3 & -8 & 0 \\ 0 & 0 & 5 & 4 \\ 0 & 0 & 0 & 1 \end{bmatrix}$

(24) Find characteristic polynomial and the real eigen values of
$\begin{bmatrix} 4 & 0 & -1 \\ 0 & 4 & -1 \\ 1 & 0 & 2 \end{bmatrix} \begin{bmatrix} -1 & 0 & 2 \\ 3 & 1 & 0 \\ 0 & 1 & 2 \end{bmatrix}$

(25) Let A=PDP^{-1} and compute A^4 where P=$\begin{bmatrix} 5 & 7 \\ 2 & 3 \end{bmatrix}$ D=$\begin{bmatrix} 1 & 2 \\ 2 & 3 \end{bmatrix}$

(26) Let B =$\{b_1, b_2, b_3\}$ and D=$\{d_1, d_2\}$ be bases for vector spaces V and W respectively. Let $T : V \longrightarrow W$ be a linear transformation with the property that $T(b_1) = 3d_1 - 5d_2$, $T(b_2) = -d_1 + 6d_2$, $T(b_3) = 4d_2$ Find the matrix T relative to B and D.

(27) Let D=$\{d_1, d_2\}$ and B =$\{b_1, b_2\}$ be bases for vector spaces V and W respectively. Let $T : V \longrightarrow W$ be a linear transformation with the property that $T(d_1) = 3b_1 - 3b_2$, $T(d_2) = -2b_1 + 5b_2$. Find the matrix for T relative to B and D.

(28) Let $B = \{b_1, b_2, b_3\}$ be a basis for a vector space$V$and let $T : V \longrightarrow R^2$ be a linear transformation with the property that
$$T(x_1b_1 + x_2b_2 + x_3b_3) = \begin{bmatrix} 2x_1 - 3x_2 + x_3 \\ -2x_1 + 5x_3 \end{bmatrix}$$
find the matrix for T relative to B and the standard basis for $\mathbf{R}^2$.

(29) Let $T : P_2 \longrightarrow P_3$ be the transformation that maps a polynomial p(t) into the polynomial (t+3)p(t)
(a). Find the image of $p(t) = 3 - 2t + t^2$
(b). Show that T is a linear transformation
(c). Find the matrix for T relative to the basis $\{1, t, t^2\}$ and $\{1, t, t^2, t^3\}$

(30) Assume the mapping $T : P_2 \longrightarrow P_2$ defined by
$T(a_0 + a_1t + a_2t^2) = 3a_0 + (5a_0 - 2a_1)t + (4a_1 + a_2)t^2$ is linear.Find the matrix representation of T relative to the basis $B=\{1, t, t^2\}$

UNIT-IV

(31) Define $T : P_3 \longrightarrow R^4 by T(P) = \begin{bmatrix} P(-2) \\ P(3) \\ P(1) \\ P(0) \end{bmatrix}$
(a. Show that T is a linear transformation
(b. Find the matrix for T relative to the basis $\{1, t, t^2, t^3\}$ for P_3 and standard basis for R^4

(32) Let A be 2×2 matrix with eigen values -3 and -1 corresponding eigen vectors $V_1 = \begin{bmatrix} -1 \\ 1 \end{bmatrix}$ and $V_2 = \begin{bmatrix} 1 \\ 1 \end{bmatrix}$. Let $X(t)$ be the position of a particle at time t solve the initial value problem $X' = AX$, $X(0) = \begin{bmatrix} 2 \\ 3 \end{bmatrix}$.

(33) Construct the general solution of $X' = AX$,A=$\begin{bmatrix} -3 & 2 \\ -1 & -1 \end{bmatrix}$, $\begin{bmatrix} -7 & 10 \\ -4 & 5 \end{bmatrix}$

(34) Compute the orthogonal projection of $\begin{bmatrix} 1 \\ 7 \end{bmatrix}$ onto the line through $\begin{bmatrix} -4 \\ 2 \end{bmatrix}$ and the origin.

(35) Let W be the subspace of R^2 spanned by $X = (\frac{2}{3}, 1)$. Find a unit vector in z that is a basis for W.

(36) Show that $\{u_1, u_2, u_3\}$ is an orthogonal set, where $u_1 = \begin{pmatrix} 3 \\ 1 \\ 1 \end{pmatrix}$, $u_2 = \begin{pmatrix} -1 \\ 2 \\ 1 \end{pmatrix}$, $u_3 = \begin{pmatrix} -\frac{1}{2} \\ -2 \\ \frac{7}{2} \end{pmatrix}$.

6

(37) The set $S = \{u_1, u_2, u_3\}$ where $u_1 = \begin{pmatrix} 3 \\ 1 \\ 1 \end{pmatrix}$, $u_2 = \begin{pmatrix} -1 \\ 2 \\ 1 \end{pmatrix}$, $u_3 = \begin{pmatrix} -\frac{1}{2} \\ -2 \\ \frac{7}{2} \end{pmatrix}$ is an orthogonal basis for

R^3. Express the vector $y = \begin{pmatrix} 6 \\ 1 \\ -8 \end{pmatrix}$ as a linear combination of the vectors in S.

(38) Show that $S = \{v_1, v_2, v_3\}$ is an orthonormal basis of R, where $v_1 = \begin{pmatrix} \frac{3}{\sqrt{11}} \\ \frac{1}{\sqrt{11}} \\ \frac{1}{\sqrt{11}} \end{pmatrix}$, $v_2 = \begin{pmatrix} -\frac{1}{\sqrt{6}} \\ \frac{2}{\sqrt{6}} \\ \frac{1}{\sqrt{6}} \end{pmatrix}$,

$v_3 = \begin{pmatrix} -\frac{1}{\sqrt{66}} \\ -\frac{4}{\sqrt{66}} \\ \frac{7}{\sqrt{66}} \end{pmatrix}$

(39) Determine given set of vectors are orthogonal or not. $\begin{pmatrix} -1 \\ 4 \\ -3 \end{pmatrix}$, $\begin{pmatrix} 5 \\ 2 \\ 1 \end{pmatrix}$, $\begin{pmatrix} 3 \\ -4 \\ -7 \end{pmatrix}$

(40) Let $U = \begin{bmatrix} \frac{1}{\sqrt{2}} & \frac{2}{3} \\ \frac{1}{\sqrt{2}} & -\frac{2}{3} \\ 0 & \frac{1}{3} \end{bmatrix}$ and $x = \begin{bmatrix} \sqrt{2} \\ 3 \end{bmatrix}$. Notice that U has orthonormal columns and $U^T U =$

$\begin{bmatrix} \frac{1}{\sqrt{2}} & \frac{1}{\sqrt{2}} & 0 \\ \frac{2}{3} & -\frac{2}{3} & \frac{1}{3} \end{bmatrix} \begin{bmatrix} \frac{1}{\sqrt{2}} & \frac{2}{3} \\ \frac{1}{\sqrt{2}} & -\frac{2}{3} \\ 0 & \frac{1}{3} \end{bmatrix} = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$ verify that $\|Ux\| = \|x\|$.

Kakatiya University
B.Sc. Mathematics, V Semester
SOLID GEOMETRY

DSE-1E/A
BS:506

Theory: 3 credits and Practicals: 1 credits
Theory: 3 hours /week and Practicals: 2 hours/week

Objective: Students learn to describe some of the surfaces by using analytical geometry.

Outcome: Students understand the beautiful interplay between algebra and geometry.

UNIT- I

Sphere: Definition-The Sphere Through Four Given Points - Equations of a Circle - Intersection of a Sphere and a Line - Equation of a Tangent Plane - Angle of Intersection of Two Spheres - Radical Plane.

UNIT- II

Cones : Definition-Condition that the General Equation of second degree Represents a Cone - Cone and a Plane through its Vertex - Intersection of a Line with a Cone. The Right Circular Cone.

UNIT- III

Cylinder: Definition-Equation of a Cylinder-Enveloping Cylinder - The Cylinder - The Right Circular Cylinder.

UNIT- IV

The Conicoid: The General Equation of the Second Degree-Intersection of Line with a Conicoid- Plane of contact-Enveloping Cone and Cylinder.

TEXT: Shanti Narayan and P K Mittal, *Analytical Solid Geometry* (17e)
References:

- Khaleel Ahmed, *Analytical Solid Geometry*

- S L Loney , *Solid Geometry*

- Smith and Minton, *Calculus*

Practical Question Bank

UNIT-I

(1) Find the equation of the sphere through the four points (4,-1,2), (0,-2,3), (1,-5,-1), (2,0,1).

(2) Find the equation of the sphere through the four points (0,0,0,), (-a,b,c), (a,-b,c), (a,b,-c).

(3) Find the centre and radius of the circle $x + 2y + 2 = 15$, $x^2 + y^2 + z^2 - 2y - 4z = 11$.

(4) Show that the following points are concyclic:
   (i) (5,0,2), (2,-6,0), (7,-3,8), (4,-9,6).
   (ii) (-8,5,2), (-5,2,2), (-7,6,6), (-4,3,6).

(5) Find the centres of the two spheres which touch the plane $4x + 3y = 47$ at the points (8.5,4) and which touch the sphere $x^2 + y^2 + z^2 = 1$

(6) Show that the spheres $x^2 + y^2 + z^2 = 25$ & $x^2 + y^2 + z^2 - 24x - 40y - 18z + 225 = 0$ touch externally and find the point of contact.

(7) Find the equation of the sphere that passes through the two points (0,3,0), (-2,-1,-4) and cuts orthogonally the two spheres

$$x^2 + y^2 + z^2 - x - 3z - 2 = 0, \quad 2(x^2 + y^2 + z^2) + x + 3y + 4 = 0.$$

(8) Find the limiting points of the co-axal system of spheres $x^2 + y^2 + z^2 - 20x + 30y - 40z + 29 + \lambda(2x - 3y + 4z) = 0$.

(9) Find the equation of the two spheres of the co-axal systems $x^2 + y^2 + z^2 - 5 + \lambda(2x + y + 3z - 3) = 0$. which touch the plane $3x + 4y = 15$.

(10) Show that the radical planes of the spheres of a co-axal system and of any given sphere pass through a line.

UNIT-II

(11) Find the equation of cone whose vertex is (α, β, γ) and base $ax^2 + by^2 = 1$, $z = 0$

(12) The section of a cone whose vertex is P and guiding curve the ellipse $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1, z = 0$ by the plane $x = 0$ is a rectangular hyperbola . show that the locus of P is $\frac{x^2}{a^2} + \frac{y^2+z^2}{b^2} = 1$

(13) Find the equation of the cone whose vertex is the point (1,1,0)and whose guiding curve is $y = 0, x^2 + y^2 = 4$

(14) Find the equation of the cone whose vertex is the point (1,2,3) and guiding curve the circle $x^2 + y^2 + z^2 = 4, x + y + z = 1$

(15) Find the enveloping cone of the sphere $x^2 + y^2 + z^2 - 2x + 4z = 1$ with vertex at (1,1,1).

(16) Show that the plane $z = 0$ cuts the envolping cone of the sphere $x^2 + y^2 + z^2 = 11$ which has its vertex at (2,4,1) in a rectangular hyperbola.

(17) Find the equation of the quadric cone whose vertex is at the origin and which passes through the curve given by the equations $ax^2 + by^2 + cz^2 = 1$, $lx + my + nz = p$.

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(18) Find the equations to the cones with vertex at origin and which pass through the curve given by the equations $ax^2 + by^2 = 2z, lx + my + nz = p.$

(19) Find the equation of the cone with vertex at the origin and direction cosines of its generators satisfying the relation $3l^2 - 4m^2 + 5n^2 = 0$

(20) Find the equations to the cones with vertex at origin and which pass through the curve given by the equations $z = 2, x^2 + y^2 = 4$

UNIT-III

(21) Find the equation of a cylinder whose generating line have the direction cosines (l, m, n) and which passes through the circle $x^2 + z^2 = a^2, y = 0.$

(22) Find the equation of the cylinder whose generators are parallel to $x = -\frac{1}{2}y = \frac{1}{3}z$ and whose guiding curve is the ellipse $x^2 + 2y^2 = 1, z = 3.$

(23) Find the envoloping cylinder of the sphere $x^2 + y^2 + z^2 - 2x + 4y = 1$ having the generators paerallel to the line $x = y = z.$

(24) The axis equation of a right circular cylinder of radius 2 is $\frac{(x-1)}{2} = \frac{y}{3} = \frac{(z-3)}{1}$;
Show that its equation is $10x^2 + 5y^2 + 13z^2 - 12xy - 6yz - 4zx - 8x - 30y - 74z + 59 = 0.$

(25) Find the equation of the right circular cylinder of radius 2 whose axis is the line $\frac{x-1}{2} = \frac{y-2}{2} = \frac{z-2}{2}.$

(26) Find the equation of the right circular cylinder of radius 2 whose axis passes through the point $(1, 2, 3)$ and has direction cosines proportional to $(2, -3, 6).$

(27) Find the right circular cylinder of radius 4 and axis the line $x = 2y = -z.$ Also prove that the area of cross - section of the cylinder by the plane $z = 0$ is 24π

(28) Obtain the equation of the right circular cylinder described on the circle through the three points $(1, 0, 0), (0, 1, 0), (0, 0, 1)$ as guiding circle.

(29) Find the equation of the right circular cylinder of radius 2 whose axis is the line $\frac{(x-1)}{2} = (y-2) = \frac{(z-3)}{2}$

(30) Find the equation, if the cylinder whose generator touch the sphere $x^2 + y^2 + z^2 = a^2$ and parallel to the line $\frac{x}{l} = \frac{y}{m} = \frac{z}{n}.$

UNIT-IV

(31) Find the points of intersection of the line $-\frac{1}{3}(x + 5) = (y - 4) = \frac{1}{7}(z - 11)$, with the conicoid $12x^2 - 17y^2 + 7z^2 = 7.$

(32) Find the equations to the tangent planes to $7x^2 - 3y^2 - z^2 + 21 = 0$, which passes through the line, $7x - 6y + 9 = 3, z = 3.$

(33) Obtain the tangent planes to the ellipsoid $\frac{x^2}{a^2} + \frac{y^2}{b^2} + \frac{z^2}{c^2} = 1$, which are parallel to the plane $lx + my + nz = 0.$

(34) Show that the plane $3x + 12y - 6z - 17 = 0$ touches the conicoid $3x^2 - 6y^2 + 9z^2 + 17 = 0$, and find point of contact.

(35) Find the equations to the tangent planes to the surface
$4x^2 - 5y^2 + 7z^2 + 13 = 0$ parallel to the plane $4x + 20y - 21z = 0$.
Find their points of contact also.

(36) Find the locus of the perpendiculars from the origin to the tangent planes to the surface $\frac{x^2}{a^2} + \frac{y^2}{b^2} + \frac{z^2}{c^2} = 1$ which cut off from its axes intercepts the sum of whose reciprocals is equal to a constant $\frac{1}{k}$.

(37) If the section of the enveloping one of the ellipsoid $\frac{x^2}{a^2} + \frac{y^2}{b^2} + \frac{z^2}{c^2} = 1$, whose vertex is P by the plane $z = 0$ is a rectangular hyperbola, show that the locus of P is $\frac{x^2+y^2}{a^2+b^2} + \frac{z^2}{c^2} = 1$.

(38) Find the locus of points from which three mutually perpendicular tangent lines can be drawn to the conicoid $ax^2 + by^2 + cz^2 = 1$.

(39) $P(1,3,2)$ is a point on the conicoid $x^2 - 2y^2 + 3z^2 + 5 = 0$. Find the locus of the mid-points of chords drawn parallel to OP.

Kakatiya University
B.Sc. Mathematics, V Semester
INTEGRAL CALCULUS

DSE-1E/B
BS:506

Theory: 3 credits and Practicals: 1 credits
Theory: 3 hours/week and Practicals: 2 hours/week

Objective: Techniques of multiple integrals will be taught.

Outcome: Students will come to know about its applications in finding areas and volumes of some solids.

UNIT-I

Areas and Volumes: Double Integrals-Double Integrals over a Rectangle-Double Integrals over General Regions in the Plane.

UNIT-II

Double integrals,Changing the order of Integrationm,Triple Integrals: The Integrals over a Box.

UNIT-III

Elementary Regions in Space-Triple Integrals in General,Triple Integral.

UNIT-IV

Change of Variables: Coordinate Transformations-Change of Variables in Triple Integrals.

TEXT: Susan Jane Colley, *Vector Calculus(4e)*
References

- Smith and Minton,*Calculus*

- Shanti Narayan and Mittal, *Integral calculus*

- Ulrich L. Rohde , G. C. Jain, Ajay K. Poddar and A. K. Ghosh;*Introduction to Integral Calculus*

2.14.1 Practicals Question Bank
UNIT-I

(1) Let $R = [-3,3] \times [-2,2]$.Without explicitly evaluating any iterated integrals,determine the value of $\iint_R (x^5 + 2y)dA$.

(2) Integrate the function $f(x,y) = 3xy$ over the region bounded by $y = 32x^3$ and $y = \sqrt{x}$.

(3) Integral the function $f(x,y) = x + y$ over the region bounded by $x + y = 2$ and $y^2 - 2y - x = 0$.

(4) Evaluate $\iint_D xy dA$,where D is the region bounded by $x = y^3$ and $y = x^2$.

(5) Evaluate $\iint_D e^{x^2} dA$, where D is the triangular region with vertices $(0,0), (1,0)$ and $(1,1)$.

(6) Evaluate $\iint_D 3y dA$,where D is the region bounded by $xy^2 = 1, y = x, x = 0$ and $y = 3$.

(7) Evaluate $\iint_D (x - 2y)dA$,where D is the region bounded by $y = x^2 + 2$ and $y = 2x^2 - 2$.

(8) Evaluate $\iint_D (x^2 + y^2)dA$,where D is the region in the first quadrant bounded by $y = x, y = 3x$ and $xy = 3$.

(9) Let D be the region bounded by the parabolas $y = 3x^2, y = 4 - x^2$ and the y-axis (Note that parabolas intersect at the point (1,3)).Since D is the type1 elementary region,with $f(x,y) = x^2 y$ then find $\iint_D x^2 y dA = \int_0^1 \int_{3x^2}^{4-x^2} x^2 y dy dx$

(10) Find the volume of the region under the graph of
$f(x,y) = 2 - |x| - |y|$.
and above the xy-plane.

Unit-II

(11) Calculate area of shaded region from the given figure. Consider D as type-I region
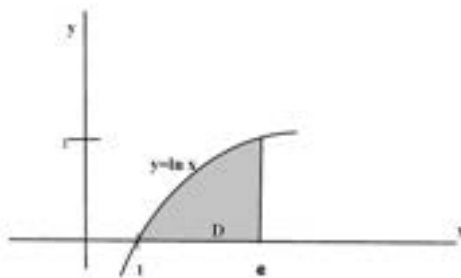
(12) Use change of order of the integration find integral $\int_0^2 \int_{y^2}^4 y\cos(x^2)dxdy$.

(13) consider the integral $\int_0^2 \int_{x^2}^{2x} (2x + 1)dydx$ (a)Evaluate this integral. (b)Sketch the region of integration. (c)Write an equivalent iterated integral with the order of integration reversed.Evaluate this new integral and check that your answer agrees with part(a).

(14) Evaluate $\iiint_{[-2,3] \times [0,1] \times [0,5]} (x^2 e^y + xyz)dV$

(15) Evaluate $\iiint_{[-1,1] \times [0,2] \times [1,3]} xyz dV$

(16) Evaluate $\iiint_{[0,1] \times [0,2] \times [0,3]} (x^2 + y^2 + z^2) dV$

(17) Evaluate $\iiint_{[1,e] \times [1,e] \times [1,e]} \frac{1}{xyz} dV$

(18) Find the value of $\iiint_W z dV, where W = [-1,2] \times [2,5] \times [-3,3]$, without resorting to explicit calulation.

(19) Evaluate the iterative integral. $\int_{-1}^{2} \int_{1}^{z^2} \int_{0}^{y+z} 3yz^2 dx dy dz$.

(20) Evaluate the iterative integral. $\int_{1}^{3} \int_{0}^{z} \int_{1}^{xz} (x + 2y + z) dy dx dz$.

Unit-III

(21) Let W be the solid region bounded by the hemisphere $x^2 + y^2 + z^2 = 4$ where $z \leq 0$ and the paraboloid $z = 4 - x^2 - y^2$ put solid bounded by them in type1,type2,type3,type4 forms and discuss the same geometrically.

(22) Put the solid bounded by the ellipsoid $E : \frac{x^2}{a^2} + \frac{y^2}{b^2} + \frac{z^2}{c^2} = 1, a, b, c$ are positive constants in the in type1,type2,type3,type4 forms and discuss the same geometrically.

Integrate the following over the indicated W.

(23) $f(x,y,z) = 2x - y + z$; W is the region bounded by the cylinder $z = y^2$,the xy-plane,the planes $x = 0, x = 1, y = -2, y = 2$.

(24) $f(x,y,z) = y$; W is the region bounded by the plane $x + y + z = 2$,the cylinder $x^2 + z^2 = 1$ and $y = 0$.

(25) $f(x,y,z) = 8xyz$; W is the region bounded by the cylinder $y = x^2$,the plane $y + z = 9$ and the xy-plane.

(26) $f(x,y,z) = z$; W is the region in the first octant bounded by the cylinder $y^2 + z^2 = 9$ and the planes $y = x, x = 0$ and $z = 0$.

(27) $f(x,y,z) = 1 - z^2$; W is the tetrahedron with vertices $(0,0,0), (1,0,0), (0,2,0)$ and $(0,0,3)$.

(28) $f(x,y,z) = 3x$; W is the region in the octant bounded by $z = x^2 + y^2, x = 0, y = 0$ and $z = 4$.

(29) $f(x,y,z) = x + y$; W is the region bounded by the cylinder $x^2 + 3z^2 = 9$ and the plane $y = 0, x + y = 3$.

(30) $f(x,y,z) = z$; W is the region bounded by $z = 0, x^2 + 4y^2 = 4$ and $z = x + 2$.

Unit-IV

(31) Let $T : R^3 \longrightarrow R^3$ be given by $T(u,v,w) = (2u, 2u+3v+w, 3w)$ write T by matrix multiplication. Integrate the following over the indicated region W.

(32) $f(x,y,z) = 4x + y$; W is the region bounded by $x = y^2, y = z, x = y$ and $z = 0$.

(33) $f(x,y,z) = x$; W is the region in the first octant bounded by $z = x^2 + 2y^2$, $z = 6 - x^2 - y^2$, $x = 0$ and $y = 0$.

(34) Let $T(u,v) = (3u, -v)$. Write $T(u,v)$ as $A[y]$ for a suitable matrix A.

(35) Describe the image $D = T(D^*)$, where D^* is the unit square $[0,1] \times [0,1]$.

(36) Determine the value of $\iint_D \sqrt{\frac{x+y}{x-2y}} \, dA$, where D is the region in R^2 enclosed by the lines $y = x^2, y = 0$ and $x + y = 1$.

(37) Evaluate $\iint_D \sqrt{\frac{(2x+y-3)^2}{(2y-x+6)^2}} \, dx \, dy$, where D is the square with vertices $(0,0), (2,1), (3,-1)$ and $(1,-2)$. (Hint:First sketch D and find the equations of its sides).

(38) Evaluate $\iint_D \cos(x^2 + y^2) dA$ where D is the shaded region in the following figure.

Arc of a circle
of radius 1
(centered at
origin)

D

$y = \sqrt{3}x$
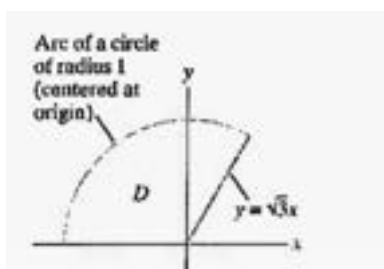
(39) Evaluate $\iint_D \frac{1}{\sqrt{4-x^2-y^2}} dA$. where D is the disk of radius 1 with center at $(0,1)$.(Be careful when you describe D.)

(40) Determine the value of $\iiint_W \frac{z}{\sqrt{x^2+y^2}} dV$. where W is the solid region bounded by the plane $z = 12$ and the paraboloid $z = 2x^2 + 2y^2 - 6$.

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CURRICULUM FOR MATHEMATICS
IN UNDER GRADUATE DEGREE PROGRAMME

CBCS SYLLABUS SCHEDULE 2016 - 2017
SEMESTER - VI

By

Chairperson

Board of Studies

Department of Mathematics

Kakatiya University, Warangal.

B.Sc. Mathematics, VI Semester
Skill Enhancement Course - IV
B.Sc., III Year, VI Semester
Quantitative Aptitude Test

Credits: 2 Theory: 2 hours/week   **Marks - 50**
Unit I : Arithematical Ability

1.1 Arithmetical Ability: Ratio and Proportion
1.2 Arithmetical Ability: Time and Work, Time and Distance
1.3 Arithmetical Ability: Simple Interest, Compound Interest
1.4 Arithmetical Ability: Stocks and Shares

Unit II : Data Interpretation

2.1 Data Interpretation: Tabulation
2.2 Data Interpretation: Bar Graphs
2.3 Data Interpretation: Pie Charts
2.4 Data Interpretation: Line Graphs
TEXT: *Quantitative Aptitude* by Dr.R.S.Aggarwal

Kakatiya University
B.Sc. Mathematics, VI Semester
NUMERICAL ANALYSIS

DSC-1F
BS:603

Theory: 3 credits and Practicals: 1 credits
Theory: 3 hours/week and Practicals: 2 hours/week

Objective: Students will be made to understand some methods of numerical analysis.

Outcome: Students realize the importance of the subject in solving some problems of algebra and calculus.

UNIT-I

Solutions of Equations in One Variable : The Bisection Method - Fixed-Point Iteration - Newtons Method and Its Extensions - Error Analysis for Iterative Methods - Accelerating Convergence - Zeros of Polynomials and Mullers Method - Survey of Methods and Software.

UNIT-II

Interpolation and Polynomial Approximation: Interpolation and the Lagrange Polynomial - Data Approximation and Nevilles Method - Divided Differences.

UNIT-III

Hermite Interpolation - Cubic Spline Interpolation. Numerical Differentiation and Integration: Numerical Differentiation - Richardsons Extrapolation

UNIT-IV

Elements of Numerical Integration- Composite Numerical Integration - Romberg Integration - Adaptive Quadrature Methods - Gaussian Quadrature.

TEXT: Richard L. Burden and J. Douglas Faires,*Numerical Analysis (9e)*
References

- M. K. Jain, S. R. K. Iyengar and R. K. Jain, *Numerical Methods for Scientific and Engineering computation*

- B. Bradie, *A Friendly introduction to Numerical Analysis*

UNIT-I

(1) Use the Bisection method to find P_3 for $f(x) = \sqrt{x} - cosx$ on [0,1].

(2) Let $f(x) = 3(x+1)(x-1/2)(x-1)$. Use the Bisection method on the following intervals to find P_3.
   (a) [-2,1.5]
   (b) [-1.25,2.5]

(3) Use the Bisection method to find solutions accurate with in 10^{-5} for the following problems.
   (a) $x - 2^{-x} = 0$ for $0 \le x \le 1$
   (b) $e^x - x^2 + 3x - 2 = 0$ for $0 \le x \le 1$
   (c) $2xcos(2x) - (x+1)^2 = 0$ for $-3 \le x \le -2$ and$-1 \le x \le 0$.

(4) Use algebraic manipulation to show that each of the following functions has a fixed point at p precisely when $f(p) = 0$, where $f(x) = x^4 + 2x^2 - x - 3$.
   (a) $g_1(x) = (3 + x - 2x^2)^{1/4}$
   (b) $g_2(x) = (\frac{x+3-x^4}{2})^{\frac{1}{2}}$

(5) Use a fixed-point iteration method to determine a solution accurate to with in 10^{-2} for $x^4 - 3x^2 - 3 = 0$ on [1,2]. Use $p_0 = 1$.

(6) Use a fixed-point iteration method to determine a solution accurate to within 10^{-2} for $x^3 - x - 1 = 0$ on [1,2] .Use $p_0 = 1$.

(7) Use a fixed-point iteration method to find an approximation to $\sqrt{3}$ that is accurate to within 10^{-4}.

(8) The equation $x^2 - 10cosx = 0$ has two solutions,± 1.3793646. Use Newton's method to approximate the solutions to within 10^{-5} with the following values of P_0.
   (a) $P_0 = -100$
   (b) $P_0 = -50$
   (c) $P_0 = -25$
   (d) $P_0 = 25$
   (e) $P_0 = 50$
   (f) $P_0 = 100$

(9) The equation $4x^2 - e^x - e^{-x} = 0$ has two positive solutions x_1 and x_2.Use Newton's method to approximate the solution to within 10^{-5} with the following values of p_0.
   (a) $P_0 = -10$ (b) $P_0 = -5$ (c) $P_0 = -3$
   (d) $P_0 = -1$ (e) $P_0 = 0$ (f) $P_0 = 1$
   (g) $P_0 = 3$ (h) $P_0 = 5$ (i) $P_0 = 10$

(10) Use each of the following methods to find a solution in [0.1, 1] accurate to within 10^{-4} for $600x^4 - 550x^3 + 200x^2 - 20x - 1 = 0$
   (a) Bisection method
   (b) Newton method
   (c) Secant method
   (d) Method of False position
   (e) Muller's method

UNIT-II

(11) For the given function $f(x)$, let $x_0 = 0$, $x_1 = 0.6$, and $x_2 = 0.9$. Construct interpolation polynomial of degree at most one and at most two to approximate f(0.45),and find the absolute error
(a) $f(x) = cosx$ (b) $f(x) = ln(x+1)$

(12) For the given function $f(x)$, let $x_0 = 1$, $x_1 = 1.25$ and $x_2 = 1.6$. Construct interpolation polynomial degree at most one and at most two to approximate f(1.4), and find the absolute error.
(a) $f(x) = sin\pi x$ (b) $f(x) = log(3x - 1)$

(13) Let $P_3(x)$ be the interpolating polynomials for the data $(0,0),(0.5, y),(1, 3)$ and $(2, 2)$. The coefficient of x^3 in $P_3(x)$ is 6. Find y

(14) Neville's method is used to approximate $f(0.4)$, giving the following table.

$x_0 = 0$	$P_0 = 1$			
$x_1 = 0.25$	$P_1 = 2$	$P_{0,1} = 2.6$		
$x_2 = 0.5$	P_2	$P_{1,2}$	$P_{0,1,2}$	
$x_3 = 0.75$	$P_3 = 8$	$P_{2,3} = 2.4$	$P_{1,2,3} = 2.96$	$P_{0,1,2,3} = 3.016$

Determine $P_2 = f(0.5)$.

(15) Neville's method is used to approximate $f(0.5)$, giving the following table.

$x_0 = 0$	$P_0 = 0$		
$x_1 = 0.4$	$P_1 = 2.8$	$P_{0,1} = 3.5$	
$x_2 = 0.7$	P_2	$P_{1,2}$	$P_{0,1,2} = \frac{27}{7}$

Determine $P_2 = f(0.7)$.

(16) Neville's Algorithm is used to approximate $f(0)$ using $f(-2),f(-1),f(1)$ and $f(2)$. Suppose $f(-1)$ was overstated by 2 and $f(1)$ was understated by 3. Determine the error in the original calculation of the value of the interpolating polynomial to approximate $f(0)$.

(17) Compute the divided difference table for the data

x	1.0	1.3	1.6	1.9	2.2
$f(x)$	0.7651977	0.6200860	0.4554022	0.2818186	0.1103623

(18) Use the Newton forward-difference formula to construct interpolating polynomaials of degree one,two,and three for the following data. Approximate the specified value using each of the polynomials.
(a) $f(0.43)$ if $f(0) = 1$, $f(0.25) = 1.64872$, $f(0.5) = 2.71828$, $f(0.75) = 4.48169$
(b) $f(0.18)$ if $f(0.1) = -0.29004986$, $f(0.2) = -0.56079734$, $f(0.3) = -0.81401972$, $f(0.4) = -1.0526302$

(19) Use the Newton backward-difference formula to construct interpolating polynomials of degree one, two, and three for the following data. Approximate the specified value using each of the polynomials.
(a) $f(0.43)$ if $f(0) = 1,f(0.25) = 1.64872,f(0.5) = 2.71828,f(0.75) = 4.48169$
(b) $f(0.25)$ if $f(-1) = 0.86199480$, $f(-0.5) = 0.95802009$, $f(0) = 1.0986123$, $f(0.5) = 1.2943767$

(20) Use Stirling's formula to approximate $f(0.43)$ for the following data

x	0.0	0.2	0.4	0.6	0.8
$f(x)$	1.0000	1.22140	1.49182	1.82212	2.22554

UNIT-III

(21) Use the Hermite Polynomial to find an approximation of $f(1.5)$ for the following data

k	x_k	$f(x_k)$	$f'(x_k)$
0	1.3	0.6200860	-0.5220232
1	1.6	0.4554022	-0.56989959
2	1.9	0.2818186	-0.5811571

(22) A car travelling along a straight road is clocked at a number of points. The data from the observations are given in the following table, where the time is in seconds, the distance is in feet, and the speed is in feet per second.

Time	0	3	5	8	13
Distance	0	225	383	623	993
Speed	75	77	80	74	72

Use Hermites polynomial to predict the position of the car and its speed when $t = 10 second$

(23) Use the following values and five - digit - rounding arithematic to construct the Hermite interpolating polynomial to approximate $sin(0.34)$

x	$sinx$	$D_x sinx = cosx$
0.30	0.29552	0.95534
0.32	0.31457	0.94924
0.35	0.34290	0.93937

(24) Determine the natural cubic spline S that interpolates the data $f(0) = 0, f(1) = 1,$ and $f(2) = 2$.

(25) Determine the clamped cubic spline S that interpolates the data $f(0) = 0, f(1) = 1, f(2) = 2$, and satisfies $s'(0) = s'(2) = 1$.

(26) Use the forward-difference formula and backward-difference formula to determine each missing entry in the following tables.

(a)

x	$f(x)$	$f'(x)$
0.5	0.4794	
0.6	0.5646	
0.7	0.6442	

(b)

x	$f(x)$	$f'(x)$
0.0	0.0000	
0.2	0.74140	
0.4	1.3718	

(27) Consider the following table of data

x	0.2	0.4	0.6	0.8	1.0
$f(x)$	0.9798652	0.9177710	0.808038	0.6386093	0.3843735

Use all the appropriate formulas given in this section to approxmate $f'(0.4)$ and $f''(0.4)$.

(28) Derive a method for approximating $f'''(x_0)$ whose error term is of order h^2 by expanding the function f in a fourth Taylor polynomial about x_0 and evaluating at $x_0 \pm h$ and $x_0 \pm 2h$.

(29) The forward-difference formula can be expressed as

$f'(x_0) = \frac{1}{h}[f(x_0 + h) - f(x_0)] - \frac{h}{2}f''(x_0) - \frac{h^2}{6}f'''(x_0) + O(h^3)$. Use extrapolation to derive $O(h^3)$ formula for $f'(x_0)$

(30) Show that $lim_{h \to 0}(\frac{2+h}{2-h})^{\frac{1}{h}} = e$

UNIT-IV

(31) Approximation the following integrals using the Trapezoidal rule.
  (a) $\int_{0.5}^{1} x^4 dx$
  (b) $\int_{0}^{0.5} \frac{2}{x-4} dx$
  (c) $\int_{1}^{1.5} x^2 lnx dx$
  (d) $\int_{0}^{1} x^2 e^{-x} dx$

(32) Approximate the following integral using Trapezoidal Rule
  (a) $\int_{-0.25}^{0.25} (cosx)^2 dx$
  (b) $\int_{-0.5}^{0} xln(x+1) dx$

(33) The Trapezoidal rule applied to $\int_{0}^{2} f(x) dx$ gives the value 5, and the midpoint rule gives the value 4. What value does Simpson's rule give?

(34) The quadrature formula $\int_{0}^{2} f(x) dx = c_0 f(0) + c_1 f(1) + c_2 f(2)$ is exact for all polynomials of degree less than or equal to 2. Determine c_0, c_1, and c_2.

(35) Find the constants c_0, c_1 and x_1 so that quadrature formula $\int_{0}^{1} f(x) dx = c_0 f(0) + c_1 f(x_1)$ has the highest possible degree of precision.

(36) Use the composite Trapezoidal Rule with the indicated values of n to approximate the following integrals
  (a) $\int_{1}^{2} xlnx dx$, n=4
  (b) $\int_{-2}^{2} x^3 e^x dx$, n=4.

(37) Suppose that $f(0) = 1, f(0.5) = 2.5, f(1) = 2$ and $f(0.25) = f(0.75) = \infty$. Find ∞ if the Composite Trapezoidal rule with $n = 4$ gives the value 1.75 for $\int_{0}^{1} f(x) dx$

(38) Romberg integration is used to approximate $\int_{2}^{3} f(x) dx$.
  If $f(2) = 0.51342, f(3) = 0.36788$ $R_{31} = 0.43687$, $R_{33} = 0.43662$, find $f(2.5)$

(39) Use Romberg integration to compute $R_{3,3}$ for the following integrals.
  (a) $\int_{1}^{1.5} x^2 lnx dx$
  (b) $\int_{0}^{1} x^2 e^{-x} dx$

(40) Use Romberg integration to compute $R_{3,3}$ for the following integrals.
  (a) $\int_{-1}^{1} (cosx)^2 dx$
  (b) $\int_{-0.75}^{0.75} xln(x+1) dx$

Kakatiya University
B.Sc. Mathematics, VI Semester
COMPLEX ANALYSIS

DSE-1F/A
BS:606

Theory: 3 credits and Practicals: 1 credits
Theory: 3 hours/week and Practicals: 2 hours/week

Objective: Analytic Functions, contour integration and calculus of residues will be introduced to the students.

Outcome: Students realize calculus of residues is one of the power tools in solvng some problems, like improper and definite integrals, effortlessly.

UNIT-I

Regions in the Complex Plane - Analytic Functions - Functions of a Complex Variable - Mappings - Mappings by the Exponential Function - Limits - Theorems on Limits - Limits Involving the Point at Infinity - Continuity - Derivatives - Differentiation Formulas - Cauchy-Riemann Equations - Sufficient Conditions for Differentiability - Polar Coordinates-Harmonic Functions.

UNIT-II

Elementary Functions: The Exponential Function - The Logarithmic Function - Branches and Derivatives of Logarithms - Some Identities Involving Logarithms Complex Exponents - Trigonometric Functions - Hyperbolic Functions.

UNIT-III

Integrals: Derivatives of Functions w(t) - Definite Integrals of Functions w(t) - Contours - Contour Integrals - Some Examples - Examples with Branch Cuts - Upper Bounds for Moduli of Contour Integrals -Antiderivatives.

UNIT-IV

Cauchy-Goursat Theorem - Proof of the Theorem - Simply Connected Domains - Multiply Connected Domains - Cauchy Integral Formula - An Extension of the Cauchy Integral Formula - Some Consequences of the Extension - Liouville's Theorem and the Fundamental Theorem of Algebra- Maximum Modulus Principle.

TEXT: James Ward Brown and Ruel V. Churchill, *Complex Variables and Applications* (8e)
References:

- Joseph Bak and Donald J Newman, *Complex analysis*

- Lars V Ahlfors , *Complex Analysis*

- S.Lang, *Complex Analysis*

- B Choudary, *The Elements Complex Analysis*

<div align="center">**UNIT-I**</div>

(1) Sketch the following set and determine which are domains (a) $|z - 2 + i| \leq 1$
(b) $|2z + 3| > 4$
(c) $Imz > 1$
(d) $Imz = 1$.

(2) Sketch the region onto which the sector $r \leq 1, 0 \leq \theta \leq \frac{\pi}{4}$ is mapped by the transformation

(a) $w = z^2$

(b) $w = z^3$

(c) $w = z^4$

(3) Find all roots of the equation
(a) $sinhz = i$ (b) $coshz = \frac{1}{2}$

(4) Find all values of z such that
(a) $e^z = -2$; (b) $e^z = 1 + \sqrt{3}i$; (c) $exp(2z - 1) = 1$.

(5) Show that
$lim_{z \to z_0} f(z)g(z)$ if $lim_{z \to z_0} f(z) = 0$
and if there exists a positive number M such that $|g(z)| \leq M$ for all z in some neighborhood of z_0.

(6) Show that $f'(z)$ does not exist at any point if
(a) $f(z) = \bar{z}$ (b)$f(z) = z - \bar{z}$
(c)$f(z) = 2x + ixy^2$ (d)$f(z) = e^x e^{-iy}$

(7) Verify that each of these functions is entire
(a)$f(z) = 3x + y + i(3y - x)$ (b)$f(z) = sinxcoshy + icosxsinhy$
(c)$f(z) = e^{-y}sinx - ie^{-y}cosx$ (d)$f(z) = (z^2 - 2)e^{-x}e^{-iy}$.

(8) State why a composition of two entire functions is entire. Also, state why any linear combination $c_1 f_1(z) + c_2 f_2(z)$ of two entire functions, where c_1 and c_2 are complex constants, is entire.

(9) Show that $u(x, y)$ is harmonic in some domain and find a harmonic conjugate $v(x, y)$ when
(a) $u(x, y) = 2x(1 - y)$ (b)$u(x, y) = 2x - x^3 + 3xy^2$
(c)$u(x, y) = sinhxsiny$ (d) $u(x, y) = \frac{y}{x^2 + y^2}$

(10) Show that if v and V are harmonic conjugates of $u(x, y)$ in a domain D, then $v(x, y)$ and $V(x, y)$ can differ at most by an additive constant.

<div align="center">**UNIT-II**</div>

(11) Show that $exp(z + \pi i) = -exp(z)$

(12) Find all values of z such that $e^z = -2$

(13) Show that $exp\bar{z} = \overline{expz} \; \forall z$ and $exp(\bar{iz}) = \overline{exp(iz)}$

(14) Show that the function $exp\bar{z}$ is not analytic any where

<div align="center">9</div>

(15) Show that $\overline{cos(i\bar{z})} = \overline{cos(iz)}$ $\forall z$
$\overline{sin(i\bar{z})} = \overline{sin(iz)}$ if and only if $z = n\pi i$ $(n = 0, \pm1, \pm2....)$

(16) Show that neither $sin\bar{z}$ nor $cos\bar{z}$ is an analytic function of z any where

(17) Show that $sin^{-1}(-i) = n\pi + i(-1)^{n+1}cos(1 + \sqrt{2})$ $(n = 0, \pm1, \pm2....)$

(18) Show that $cos(-ei) = 1 - \frac{\pi}{2}i$

(19) Find all the roots of the equation $coshz = \frac{1}{2}$

(20) Find all the root of the equation $sinhz = i$

UNIT-III

(21) Evaluate $\int_C f(z)dz$
where $f(z) = \frac{(z+2)}{z}$ and C is

   (a) the semicircle $z = 2e^{i\theta}(0 \le \theta \le \pi)$
   (b) the semicircle $z = 2e^{i\theta}(\pi \le \theta \le 2\pi)$
   (c) the circle $z = 2e^{i\theta}(0 \le \theta \le 2\pi)$

(22) $f(z)$ is defined by the means of the equations $f(z) = \begin{cases} 1 & when\, y < 0 \\ 4y & when\, y > 0 \end{cases}$ and C is the arc from
$z = -1 - i$ to $z = 1 + i$ along the curve $y = x^3$, then find $\int_C f(z)dz$.

(23) Let C denote the line segment from $z = i$ to $z = 1$. By observing that of all the points on that line segment, the midpoint is the closest to the origin, show that
$|\int_C \frac{dz}{z^4}| \le 4\sqrt{2}$
without evaluating the integral.

(24) Let C_R denote the upper half of the circle $|z| = R(R > 2)$, taken in the counter clockwise direction. Show that
$|\int_{C_R} \frac{2z^2-1}{z^4+5z^2+4}dz| \le \frac{\pi R(2R^2+1)}{(R^2-1)(R^2-4)}$.
Then, by dividing the numerator on the right here by R^4, show that the value of the integral tends to zero as R tends to infinity.

(25) By finding an antiderivative, evaluate each of these integrals, where the path is any contour between the indicated limits of integration:
   (a)$\int_i^{i/2} e^{\pi z}dz$ (b)$\int_0^{\pi+2i} cos(\frac{z}{2})dz$ (c)$\int_1^3 (z - 2)^3dz$

(26) Use an antiderivative to show that for every contour C extending from a point z_1 to a point z_2,
$\int_C z^n dz = \frac{1}{n+1}(z_2^{n+1} - z_1^{n+1})$ $(n = 0, 1, 2, ...)$

(27) Let C_0 and C denote the circle $z = z_0 + Re^{i\theta}(-\pi \le \theta \le \pi)$ and $z = Re^{i\theta}(-\pi \le \theta \le \pi)$ respectively.
(a) Use these parametric representations to show that
$\int_{C_0} f(z - z_0)dz = \int_C f(z)dz$

(28) Evaluate the integral $\int_C z^m z^{-n}dz$
where m and n are integers and C is the unit circle $|z| = 1$ taken counterclockwise.

(29) $f(z) = 1$ and C is an arbitary contour from any fixed point z_1 to any fixed point z_2 in the z plane .Evaluate
$\int_C f(z)dz$

(30) $f(z) = \pi exp(\pi \bar{z})$ and C is the boundary of the square with vertices at the points $0, 1, 1 + i$ and i the orientation of C being in the counterclockwise direction .Evaluate
$\int_c f(z)dz$

UNIT-IV

(31) Let C denote the positively oriented boundary of the square whose sides lie along the lines $x = \pm 2$ and $y = \pm 2$. Evaluate each of these integrals.
$a. \int_C \frac{e^{-z}}{z-(\frac{\pi i}{2})}dz$
$b. \int_C \frac{cosz}{z(z^2+8)}dz$
$c. \int_C \frac{z}{2z+1}dz$

(32) Find the value of the integral $g(z)$ around the circle $| z - i |= 2$ in the positive sense when
$a.g(z) = \frac{1}{z^2+4}$
$b.g(z) = \frac{1}{(z^2+4)^2}$

(33) C be the circle $| z |= 3$ described in the positive sense. Show that if
$g(z) = \int_C \frac{2s^2-s-2}{s-z}dz, (| z |\neq 3)$
then $g(2) = 8\pi i$. What is the value of $g(z)$ when $| z |> 3$?

(34) Let C be any simple closed contour ,described in the positive sense in z plane ,and write
$g(z) = \int_C \frac{s^3+2s}{(s-z)^3}dz$
Show that $g(z) = 6\pi iz$ when z is inside C and that $g(z) = 0$ when z is outside.

(35) Show that if f is analytic within and on a simple closed contour C and z_0 is not on C, then
$\int_C \frac{f'(z)}{z-z_0}dz = \int_C \frac{f(z)}{(z-z_0)^2}dz$

(36) Let C be the unit circle $z = e^{i\theta} (-\pi \leq \theta \leq \pi)$. First show that for any real constant a
$\int_C \frac{e^{az}}{z}dz = 2\pi i$
Then write this integral in terms of θ to derive the integration formula
$\int_0^\pi e^{acos\theta}cos(asin\theta)d\theta = \pi$

(37) suppose that $f(z)$ is entire and that the harmonic function $u(x,y) = Re|f(z)|$ has an upper bound u_0; that is $u(x,y) \leq u_0$ in the xyplane. Show that $u(x,y)$ must be constant throughtout the plane.

(38) Let a function f be continuous on a closed bounded region R, and let it be analytic and not constant throughout the interior of R. Assuming that $f(z) \neq 0$ anywhere in R. Prove that $|f(z)|$ has a minimum value m in R which occur on the boundary of R and never in the interior. Do this by applying the corresponding result for maximum values to the function $g(z) = \frac{1}{f(z)}$

(39) Let the function $f(z) = u(x,y) + iv(x,y)$ be continuous on a closed bounded region R, and suppose that it is analytic and non constant in the interior of R. Show that the component function $v(x,y)$ has maximum and minimum values in R which are reached on the boundary of R and never in the interior, where it is harmonic

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(40) Let f be the function $f(z) = e^z$ and R the rectangular region $0 \leq x \leq 1$, $0 \leq y \leq \pi$. Find points in R where the component function $u(x,y) = Re[f(z)]$ reaches its maximum and minimum values

Kakatiya University
B.Sc. Mathematics, VI Semester
VECTOR CALCULUS

DSE-1F/B
BS:606

Theory: 3 credits and Practicals: 1 credits
Theory: 3 hours/week and Practicals: 2 hours/week

Objective: Concepts like gradient, divergence, curl and their physical relevance will be taught.

Outcome: Students realize the way vector calculus is used to addresses some of the problems of physics.

UNIT- I

Line Integrals: Introductory Example : Work done against a Force-Evaluation of Line IntegralsConservative Vector Fields

UNIT- II

Surface Integrals: Introductory Example : Flow Through a PipeEvaluation of Surface Integrals. Volume Integrals: Evaluation of Volume integrals

UNIT- III

Gradient, Divergence and Curl: Partial differentiation and Taylor series in more than one variable-Gradient of a scalar field-Gradients, conservative fields and potentials-Physical applications of the gradient.

UNIT- IV

Divergence of a vector field -Physical interpretation of divergence-Laplacian of a scalar field- Curl of a vector field-Physical interpretation of curl-Relation between curl and rotation-Curl and conservative vector fields.
TEXT: P.C. Matthews,*Vector Calculus*
References:

- G.B. Thomas and R.L. Finney,*Calculus*

- H. Anton, I. Bivens and S. Davis ; *Calculus*

- Smith and Minton,*Calculus*

UNIT-I

(1) Evaluate the line integral $\int_c F \times dr$, where F is the vector field $(y, x, 0)$ and C is the curve $y = sinx$, $z = 0$, between $x = 0$ and $x = \pi$.

(2) Evaluate the line integral $\int_c x + y^2 dr$, where c is the parabola $y = x^2$ in the plane $z = 0$ connecting the points $(0, 0, 0)$ and $(1, 1, 0)$.

(3) Evaluate the line integral $\int_c f.dr$, where F=$(5z^2, 2x, x + 2y)$ and the curve C is given by $x = t, y = t^2, z = t^2$, $0 \le t \le 1$

(4) Find the line integral of the vector field $u = (y^2, x, z)$ along the curve given by $z = y = e^x$ from $x = 0$ and $x = 1$.

(5) Evaluate the line integral of the vector field $u = (xy, z^2, x)$ along the curve given by $x = 1+t, y = 0, z = t^2$, $0 \le t \le 3$.

(6) Find the line integral of $F = (y, -x, 0)$ along the curve consisting of the two straight line segments $y = 1$, $0 \le x \le 1$.

(7) Find the circulation of the vector $F = (y, -x, 0)$ around the unit circle $x^2 + y^2 = 1$, $z = 0$, taken in anticlockwise direction.

(8) Find the line integral $\oint r * dr$,where the curve C is the ellipse $x^2/a^2 + y^2/b^2 = 1$ taken in an anticlockwise direction.What do you notice about the magnitude of the answer?

(9) By considering the line integral of $F = (y, x^2 - x, 0)$ around the square in the x,y plane connecting the four points $(0, 0)$,$(1, 0)$,$(1, 1)$ and $(0, 1)$,show that F cannot be a conservative vector field.

(10) Evaluate the line integral of the vector field $u = (xy, z^2, x)$ along the curve given by $x = 1+t, y = 0, z = t^2$, $0 \le t \le 3$.

UNIT-II

(11) Evaluate the surface integral of $u = (y, x^2, z^2)$,over the surface S,where S is the triangular surface on $x = 0$ with $y \ge 0$,$z \ge 0$,$y + x \le 1$,with the normal n directed in the positive x direction

(12) Find the surface integral of $u = r$ over the part of the paraboloid $z = 1 - x^2 - y^2$ with $z > 0$, with the normal pointing upwards.

(13) If S is the entire x,y plane,evaluate the integral $I = \int_s e^{-x^2 - y^2} ds$, by transforming the integral into polar coordinates.

(14) A cube $0 \le x, y, z \le 1$ has a variable density given by $\rho = 1 + x + y + z$. what is the total mass of the cube?

(15) Find the volume of the tetrahedron with vertices $(0, 0, 0)$, $(a, 0, 0)$, $(0, b, 0)$ $(0, 0, c)$.

(16) Evaluate the surface integral of $\mathbf{u} = (xy, x, x + y)$ over the surface S defined by $z = 0$ with $0 \le x \le 1$, $0 \le y \le 2$, with the normal $\mathbf{n}$ directed in the positive z direction.

(17) The surface S is defined to be that part of the plane $z = 0$ lying between the curve $y = x^2$ and $x = y^2$. Find the surface integral of $\mathbf{u.n}$ over S where $u = (z, xy, x^2)$ and $\mathbf{n} = (0, 0, 1)$.

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(18) Find the surface integral of **u.n** over S where S is the part of the surface $z = x + y^2$ with $z < 0$ and $x > -1$, u is the vector field $\mathbf{u} = (2y + x, -1, 0)$ and $\mathbf{n}$ has a negative z component.

(19) Find the volume integral of the scalar field $\phi = x^2 + y^2 + z^2$ over the region V specified by $0 \le x \le 1, 1 \le y \le 2, 0 \le z \le 3$.

(20) Find the volume of the section of the cylinder $x^2 + y^2 = 1$ that lies between the planes $z = x + 1$ and $z = -x - 1$.

(21) Find the unit normal $\mathbf{n}$ to the surface $x^2 + y^2 - z = 0$ at the point $(1, 1, 2)$.

(22) find the gradient of the scalar field $f = xyz$ and evaluate it at the point $(1, 2, 3)$. Hence find the diraction derivative of f at this point in the direction of the vector $(1, 1, 0)$.

UNIT-III

(23) Find the divergence of the vector field **u=r**.

(24) The vector field **u** is defined by $\mathbf{u} = (xy, z + x, y)$. Calculate $\bigtriangledown \times u$ and find the point where $\bigtriangledown \times u = 0$.

(25) Find the gradient $\bigtriangledown \phi$ and the Laplacian $\bigtriangledown^2 \phi$ for the scalar field $\phi = x^2 + xy + yz^2$.

(26) Find the gradient and the Laplacian of $\phi = \sin(kx)\sin(ly)e^{\sqrt{k^2 + l^2}z}$.

(27) Find the unit normal to the surface $xy^2 + 2yz = 4$ at the point (-2, 2, 3).

(28) For $\phi(x, y, z) = x^2 + y^2 + z^2 + xy - 3x$, find $\bigtriangledown \phi$ and find the minimum value of ϕ.

(29) Find the equation of the plane which is tangent to the surface $x^2 + y^2 - 2z^3 = 0$ at the point (1, 1, 1).

(30) Prove that $\nabla^2(\frac{1}{r}) = 0$

UNIT-IV

(31) Find both the divergence and the curl of the vector fields
(a) $\mathbf{u} = (y, z, x)$;
(b) $V = (xyz, z^2, x - y)$.

(32) For what values, if any, of the constants a and b is the vector field $\mathbf{u} = (y\cos x + axz, b\sin x + z, x^2 + y)$ irrotational?

(33) (a) Show that $\mathbf{u} = (y^2 z, -z^2 \sin y + 2xyz, 2z\cos y + y^2 x)$ is irrotational.
(b) Find the corresponding potential function.
(c) Hence find the value of the line integral of **u** along the curve
$x = \sin\frac{\pi t}{2}, y = t^2 - t, z = t^4, 0 \le t \le 1$.

(34) Find the divergence of the vector field $u = \overrightarrow{r}$.

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(35) The vector field u is defined by $u = (xy, x+z, y)$, then calculate $\nabla \times u$ and find the points where $\nabla \times u = 0$.

(36) Show that both the divergence and the curl are linear operators.

(37) Find $\nabla . \nabla \phi$ if $\phi = 2x^3 y^2 z^4$.

(38) If $A = x^2 yi - 2xzj + 2yzk$ then find *curl curl A*.

(39) Show that *div curl A* $= 0$.

(40) If $A = xz^3 i - 2x^2 yzj + 2yz^4 k$ then find $\nabla \times A$ at the point $(1, -1, 1)$.

DEPARTMENT OF CHEMISTRY
KAKATIYA UNIVERSITY WARANGAL – 506 009

Department of Chemistry, Kakatiya University introduces semester wise Choice Based Credit System (CBCS) at UG level (3 Year course) chemistry as core subject along with Discipline Specific Electives (DSE) in constituent and affiliated colleges of Kakatiya University for the students admitted in the first year from 2016-17 academic year onwards.

Scheme for CBCS, the workload for each paper, distribution of marks, the number of credits and scheme of examination are herewith attached along with model papers.

Internal Assessment examination will be conducted twice in every Semester. Marks will be awarded from the average of the two Internal Assessment Exams in each Semester.

The main examination (theory and practical) will be conducted at the end of the semester.

All the theory papers and practical papers for I, II, III and IV semesters are common to all students. But, one elective (DSE) to be chosen by the student from the available options in V and VI Semesters.

The syllabi of theory and practical papers of I, II, III and IV semesters are enclosed. The syllabi of V and VI semesters will be kept available for the next academic year.

Prof. Gade Dayakar
Chairperson
Board of Studies in Chemistry
Kakatiya University - Warangal

Proposed Scheme for Choice Based Credit System in B.Sc. Chemistry

Semester	Title	Course type	Hrs/ week	No. of Credits	Main exam	Internal exam	Total
I	Chemistry-I (T)	DSC-1	4	4	80	20	100
	Chemistry -I (P)	DSC-1A	2	1	25	-----	25
II	Chemistry-II (T)	DSC-1I	4	4	80	20	100
	Chemistry -II (P)	DSC-1IA	2	1	25	-----	25
III	Chemistry-III (T)	DSC- III	4	4	80	20	100
	Chemistry-III (P)	DSC-II1A	2	1	25	-----	25
IV	Chemistry-IV (T)	DSC-1V	4	4	80	20	100
	Chemistry-IV (P)	DSC-IVA	2	1	25	-----	25
V	Chemistry-V (T)	DSC-V	3	3	60	15	75
	Chemistry –V (P)	DSC-VA	2	1	25	---	25
	Elective-I (T) A/B/C	DSE-I (T)	3	3	60	15	75
	Elective -I (P)	DSE-I (P)	2	1	25	--	25
VI	Chemistry-VI (T)	DSC-VI	3/3/3	3	60	15	75
	Chemistry -VI (P)	DSC-VI A	2/2/2	1	25	----	25
	Elective –II (T) A/B/C	DSE-II (T)	3/3/3	3	60	15	75
	Elective –II (P)	DSE-II (P)	2/2/2	1	25	-	25
Total			64	36			900

(T) = Theory; (P) = practical; DSC = Discipline specific course (Core subject); DSE = Discipline Specific Elective (Elective from core Discipline)

Dean   Prof. Gade Dayakar, Chairperson, BOS in Chemistry, KU,   Page 2

Unit-I (Inorganic Chemistry)   **15h (1 hr/week)**

S1-I-1.s-block elements:

General Characteristics of groups I and II elements, Diagonal relationship between Li and Mg, Be and Al   **2 h**

S1-I-2. p-block elements 1:   **7 h**

Group–13:Synthesis and structure ofdiborane and higher Boranes (B_4H_{10} and B_5H_9), Boron nitrogen compounds ($B_3N_3H_6$ and BN), Lewis acid nature of BX_3

Group – 14: Carbides-Classification – ionic, covalent, interstitial – synthesis.Structures and reactivity.Industrial application. Silicones – Preapartion – a) direct silicon process b) use of Grignard reagent c) aromatic silylation. Classification – straight chain, cyclic and cross-linked.

Group – 15: Nitrides – Classification – ionic, covalent and interstitial. Reactivity – hydrolysis.Preparation and reactions of hydrazine, hydroxyl amine, phosphazenes.
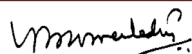
S1-I-3. General Principles of Inorganic qualitative analysis   **6 h**

Anion analysis: Theory of sodium carbonate extract, classification and reactions of anions-CO_3^{2-}, Cl^-, Br^-, SO_4^{2-}, PO_4^{3-}, BO_3^{3-} CH_3COO^-, NO_3^-.

Cation Analysis: Principles involved - Solubility product, common ion effect, general discussion for the separation and identification of group I individual cations (Hg_2^{2+}, $Ag+$, $Pb+$) with flow chart and chemical equations. Principle involved in separation of group II & IV cations.

General discussion for the separation and identification of group II (Hg^{2+}, Pb^{2+}, Bi^{3+}, Cd^{2+}, Sb^{2+}), III (Al^{3+}, Fe^{3+}), IV ((Mn^{2+}, Zn^{2+}) individual cations with flow chart and chemical equations. Application of concept of hydrolysis in group V cation analysis. General discussion for the separation and identification of group V individual cations (Ba^{2+}, Sr^{2+}, Ca^{2+}) with flow chart and chemical equations. Theory of flame test.Identification of Group VI cations (Mg^{2+}, NH_4^+).

Unit - II (Organic Chemistry) 15h (1 hr/week)

S1-O-1: Structural Theory in Organic Chemistry 6 h

*Bond polarization***:** Factors influencing the polarization of covalent bonds, electro negativity – inductive effect. Application of inductive effect (a) Basicity of amines (b) Acidity of carboxylic acids (c) Stability of carbonium ions. Resonance -Mesomeric effect, application to (a) acidity of phenol. (b) acidity of carboxylic acids and basicity of anilines. Stability of carbo cations, carbanions and free radicals.Hyper conjugation and its application to stability of carbonium ions, Free radicals and alkenes.

*Types of organic reactions***:** Addition reactions- electrophilic, nucleophilic and free radical. Substitution reactions – electrophilic, nucleophilic and free radical.Elimination and Rearrangement reactions– Examples.

S1-O-2: Acyclic Hydrocarbons 6 h

Alkanes– Methods of preparation: Corey-House reaction, Wurtz reaction, from Grignard reagent, Kolbe synthesis. Chemical reactivity - inert nature, free radical substitution, Halogenation example- reactivity, selectivity and orientation.

Alkenes - Preparation of alkenes (with mechanism) (a) by dehydration of alcohols (b) dehydrohalogenation of alkyl halides (c) by dehalogenation of 1,2dihalides, Zaitsev's rule. Properties: Addition of Hydrogen – heat of hydrogenation and stability of alkenes. trans-addition of halogen and its mechanism. Addition of HX, Markonikov's rule, addition of H_2O, HOX, H_2SO_4 with mechanism and addition of HBr in the presence of peroxide (anti – Markonikov's addition). Oxidation (cis – additions) – hydroxylation by $KMnO_4$, OsO_4, trans addition- peracids (via epoxidation), hydroboration, ozonolysis – location of double bond. Dienes – Types of dienes, reactions of conjugated dienes – 1,2 and 1,4 addition of HBr to 1,3 – butadiene and Diels – Alder reaction.

Alkynes– Preparation by dehydrohalogenation of vicinal dihalides, dehalogenation of tetrahalides. Physical Properties: Acidity of terminal alkynes (formation of metal acetylides) preparation of higher alkynes, Chemical reactivity – electrophilic addition of X_2, HX, H_2O (tautomerism), Oxidation (formation of enediol, 1,2diones and carboxylic acids) and reduction (Metal-ammonia reduction, catalytic hydrogenation)

S1-O-3: Alicyclic Hydrocarbons 3 h

Nomenclature, preapartion by Freunds method,Dickmann, heating dicarboxylic metal salts. Properties – reactivity of cyclo propane and cyclo butane by comparing with alkanes. Stability of cycloalkanes – Baeyer strain theory, Sachse and Mohr predictions and Pitzer strain theory. Conformational structures ofcyclopentane, cyclohexane.

Unit-III (Physical Chemistry)   **15 h (1 hr/week)**

S1-P-1: Atomic structure and elementary quantum mechanics   **6 h**
Black body radiation, heat capacities of solids, Rayleigh Jeans law, Planck's radiation law, photoelectric effect,Limitations of classical mechanics, Compton effect, De Broglie's hypothesis. Heisenberg's uncertainty principle, Schrodinger's wave equation and its importance.Physical interpretation of the wave function, significance of ψ and ψ^2, a particle in a box, energy levels, wave functions and probability densities.Schrodinger wave equation for H-atom.Separation of variables, radial and angular functions (only equation), hydrogen like wave functions, quantum numbers and their importance.

S1-P-2:Gaseous State   **5 h**
Deviation of real gases from ideal behavior.van der Waals equation of state. Critical phenomenon.PV isotherms of real gases, continuity of state.Andrew's isotherms of CO_2.The van der Waal's equation and critical state.Derivation of relationship between critical constants and van der Waal's constants.The law of corresponding states, reduced equation of states.Joule Thomson effect and inversion temperature of a gas.Liquifaction of gases: i) Linde's method based on Joule Thomson effect ii) Claude's method based on adiabatic expansion of a gas.

S1-P-3: Liquid State   **4 h**
Intermolecular forces, structure of liquids (qualitative description). Structural differences between solids, liquids and gases.Surface tension and its determination using stalagmometer.Viscosity of a liquid and determination of coefficient of viscosity using Ostwald viscometer.Effect of temperature on surface tension and coefficient of viscosity of a liquid (qualitative treatment only).Liquid crystals, the mesomorphic state: Classification of liquid crystals in to Smectic and Nematic, differences between liquid crystal and solid / liquid. Application of liquid crystals as LCD devices.

Unit – IV (GeneralChemistry)   **15 h (1 hr/week)**
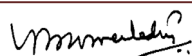
S1-G-1 Chemical Bonding   **11 h**
Ionic solids- lattice and solvation energy, solubility of ionic solids, Fajan's rule, polarity and polarizability of ions, covalent nature of ionic bond, covalent bond - Common hybridization and shapes of molecules.

Molecular orbital theory: Shapes and sign convention of atomic orbitals. Modes of overlapping.Concept of σ and π bonds.Criteria for orbital overlap.LCAO concept.Types of molecular orbitals- bonding, antibonding and non bonding. MOED of homonucleardiatomics - H_2, N_2, O_2,O_2^-,O_2^{2-},F_2 (unhybridized diagrams only) and heteronuclear diatomics CO, CN^- NO, NO^+ and HF. Bond order, stability and magnetic properties.

S1-G-2 Evaluation of analytical data   **4 h**
Significant figures, accuracy and precision. Errors-classification of errors- determinate and indeterminate errors, absolute and relative errors, propagation of errors in mathematical operations – addition, substraction, division and multiplication (with respect to determinate errors).

References:

Unit- I
1. Principles of Inorganic Chemistry by Puri, Sharma and Kalia Vishal Publications 1996.
2. Concise Inorganic Chemistry by J.D. Lee 3rdedn.
3. Basic Inorganic Chemistry by F.A.Cotton, G.Wilkinson and Paul.L.Gaus 3rdedn Wiley Publishers 2001.Chem.
4. Vogel's Qualitative Inorganic Analysis by Svehla
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4. Analytical chemistry by G. L. David Krupadanam, D. Vijaya Prasad, K. Varaprasada Rao, K.L.N. Reddy and C. Sudhakar
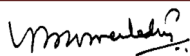
Laboratory Course   **45h (3 h / week)**

Paper IQualitative Analysis - I

I. Preparations:

1. Tetrammine copper (II) sulphate,
2. Potash alum $KAl(SO_4)_2 . 12H_2O$,
3. Bis (dimethylglyoximato) nickel(II)

II. Analysis of two anions (one simple and one interfering)

B.Sc I yr CHEMISTRY
SEMESTER WISE SYLLABUS
SEMESTER II   Paper II
Chemistry - II

Unit-I (Inorganic Chemistry)   **15 h (1 hr/week)**

S2-I-1 p-block Elements -II   **7 h**

Oxides: Types of oxides (a) Normal- acidic, basic amphoteric and neutral (b) Mixed(c) sub oxide d) peroxide e) superoxide. Structure of oxides of C, N, P, S and Cl - reactivity, thermal stability, hydrolysis.

Oxy acids: Structure and acidic nature of oxyacids of B, C, N, P, S and Cl.Redox properties of oxyacids of Nitrogen: HNO_2 (reaction with $FeSO_4$, $KMnO_4$, $K_2Cr_2O_7$), HNO_3 (reaction with H_2S, Cu), HNO_4 (reaction with KBr, Aniline), $H_2N_2O_2$ (reaction with $KMnO_4$). Redox properties of oxyacids of Potasium: H_3PO_2 (reaction with $HgCl_2$), H_3PO_3 (reaction with $AgNO_3$, $CuSO_4$). Redox properties of oxyacids of Sulphur: H_2SO_3 (reaction with $KMnO_4$, $K_2Cr_2O_7$), H_2SO_4 (reaction with Zn, Fe, Cu), $H_2S_2O_3$ (reaction with Cu, Au), H_2SO_5 (reaction with KI, $FeSO_4$), $H_2S_2O_8$ (reaction with $FeSO_4$, KI)

Interhalogens- classification- general preparation- structures of AB, AB_3, AB_5 and AB_7 type and reactivity. Poly halides- definition and structure of ICl_2^-, ICl_4^- and I_3^-.Comparison of Pseudohalogens with halogens.

S2-I-2 Chemistry of Zero group elements   **2 h**

General preparation, structure, bonding and reactivity of Xenon compounds – Oxides, Halides and Oxy-halides.Clatherate compounds and Anomalous behavior of He (II)

S2-I-3Chemistry of d-block elements   **6 h**

Characteristics of d-block elements with special reference to electronic configuration variable valence, ability to form complexes, magnetic properties &catalytic properties.Stability of various oxidation states and SRP Comparative treatment of second and third transition series with their 3d analogues.Study of Ti, Cr and Cu traids.Titanium triad – electronic configuration and reactivity of +3 and +4 states – oxides and halides.Chromium triad – reactivity of +3 and +6 states.Copper triad – reactivity of +1, +2 and +3 states.
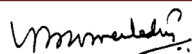
Unit - II(Organic chemistry)   **15 h (1 hr/week)**
S2-O-1:Aromatic Hydrocarbons   **7h**

Concept of aromaticity –definition, Huckel's rule – application to Benzenoids and Non – Benzenoids (cyclopropenyl cation, cyclopentadienyl anion and tropylium cation).

Preapartions: From acetylene, phenols, benzene carboxylic acids andsulphonic acids

Reactions - General mechanism of electrophilic substitution, mechanism of nitration,sulphonation,and halogenation, Friedel Craft's alkylation(polyalkylation) and acylation. Orientation of aromatic substitution - Definition of ortho, para, and meta directing groups. Ring activating and deactivating groups with examples. Orientation – (i) activating groups: Amino, methoxy and alkyl groups. (ii) Deactivating groups - carboxy, nitro, nitrile, carbonyl and sulphonic acid& halo groups.

S2-O-2:Arenes and Polynuclear Aromatic Hydrocarbons   3 h
Preparation of alkyl benzenes by Friedel Craft's alkylation, Friedel Craft's acylation followed by reduction, Wurtz-Fittig reaction.Chemical reactivity: Ring substitution reactions,side chain substitution reactions and oxidation.

Polynuclear hydrocarbons – Structure of naphthalene and anthracene (Molecular Orbital diagram and resonance energy) Reactivity towards electrophilic substitution. Nitration and sulphonation as examples.

S2-O-3: Halogen compounds   5 hrs
Nomenclature and classification: alkyl (primary, secondary, tertiary), aryl, aralkyl, allyl, vinyl, benzyl. Chemical reactivity - reduction, formation of RMgX, Nucleophilic substitution reactions – classification into S_N^1 and S_N^2. Mechanism and energy profile diagrams of S_N^1 and S_N^2 reactions. Stereochemistry of S_N^2 (Walden Inversion) 2-bromobutane, S_N^1 (Racemisation) 1-bromo-1-phenylpropane explanation of both by taking the example of optically active alkyl halide.Structure and reactivity – Ease hydrolysis - comparison of alkyl, vinyl, allyl, aryl, and benzyl halides.

Unit – III (Physical Chemistry)   15 h (1 hr/week)
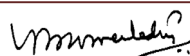
S2-P-1:Solutions   5 h
Liquid - liquid mixtures, ideal liquid mixtures**,** Raoult's and Henry's laws. Non ideal systems.Azeotropes HCl-H_2O and C_2H_5OH - H_2O systems. Fractional distillation,.Partially miscible liquids- Phenol – Water, Trimethyl amine – Water and Nicotine –Water systems.Lower upper consolute temperatures.Effect of impurity on consolute temperature.Immiscible liquids andsteam distillation. Nernst distribution law.Calculation of the partition coefficient. Applications of distribution law with solvent extraction.

S2-P-2: Dilute Solutions & Colligative Properties   5 h
Dilute Solutions, Colligative Properties, Raoult's law, relative lowering of vapour pressure, molecular weight determination. Osmosis - laws of osmotic pressure, its measurement, determination of molecular weight from osmotic pressure. Elevation of boiling point and depression of freezing point.Derivation of relation between molecular weight and elevation in boiling point and depression in freezing point.Experimental methods for determining various colligative properties.Abnormal molar mass, Van'thoff factor, degree of dissociation and assocoation of solutes.

S2-P-3: Solid state Chemistry   5 h
Laws of Crystallography – (i) Law of Constancy of interfacial angles (ii) Law of Symmetry, Symmetry elements in crystals (iii) Law of rationality of indices. Definition of space lattice, unit cell.Bravais Lattices and Seven Crystal systems (a brief review).X-ray diffraction by crystals; Derivation of Bragg's equation, Determination of structure of NaCl, KCl&CsCl (Bragg's method and Powder method).

Unit – IV (General Chemistry)   **15 h (1 hr/week)**

S2-G-1: Theory of Quantitative Analysis   **5 hours**
Volumetric Analysis: Introduction, standard solutions, indicators, end point, titration curves, Types of titrations: i)neutralization titration- principle, theory of acid base indicators, titration curves and selection of indicators- strong acid - strong base, strong acid –weak base, weak acid-strong base and weak acid –weak base.
Gravimetric analysis- Introduction, nucleation, precipitation, growth of precipitate, filtration and washing, drying and incineration of precipitate, coprecipitation and post precipitation. Determination of Ni^{2+}

S3-G-2: Theories of bonding in metals: **5 h**
Valence bond theory, Explanation of metallic properties and its limitations, Free electron theory, thermal and electrical conductivity of metals, limitations, Band theory, formation of bands, explanation of conductors, semiconductors n-type and p-type, extrinsic & intrinsic semiconductors, and insulators.
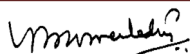
S2-G-3: Material Science   **5 h**

Classification of materials- classification as metals, ceramics, organic polymers, composites, biological materials etc.The property of super conductivity of materials.
Super conducting materials- elements, alloys and compounds. Properties of super conductors- zero resistivity, Meisener effect and thermal properties. Composites- meaning of composites, advanced composites, classification –particle rein forced fiber reinforced and structural composites general characters of composite materials-Particle- reinforced composites – large particle and dispersion- strengthened composite. Fiber reinforced composites (continuous and discontinuous fiber composites).

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1. Vogel's Text Book of Quantitative Analysis by G.H.Jeffery, J.Bassett, J.Mendham and R.C. Denney 5thedn Addison Wesley Longman Inc. 1999.
2. Quantitative Analysis by Day and Underwood Prentice Hall (India) VI Edn..
3. Nano: The Essentials by T. Pradeep, McGraw-Hill Education.
4. Chemistry of nanomaterials: Synthesis, Properties and applications by CNR Rao et.al.
5. Nanostructured Materials and Nanotechnology, edited by Hari Singh Nalwa, Academic Press
6. College Practical chemistry by V K Ahluwalia, SunithaDhingra and Adarsh Gulati

Laboratory Course   **45hrs (3 h / week)**
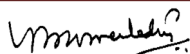
Paper II - Qualitative Analysis - II

I Semi micro analysis of mixtures

Analysis of two anions and two cations in the given mixture.

Anions: CO_3^{2-}, SO_3^{2-}, $.S^{2-}$ Cl^-, Br^-, I^- CH_3COO^-, NO_3^- PO_4^{3-}, BO_3^{3-}, SO_4^{2-}

Cations: Ag^+, Pb^{2+}, Hg^+, Hg^{2+}
        Pb^{2+}, Bi^{3+}, Cd^{2+}, Cu^{2+}, $As^{3+/5+}$, $Sb^{3+/5+}$, $Sn^{2+/4+}$
        Al^{3+}, Cr^{3+}, Fe^{3+}
        Zn^{2+}, Ni^{2+}, Co^{2+}, Mn^{2+}
        Ca^{2+}, Sr^{2+}, Ba^{2+}
        Mg^{2+}, NH_4^+

Unit-I (Inorganic Chemistry)   **15 h (1 hr/week)**

S3-I-1: Chemistry of f-block elements: **6 h**
Chemistry of Lanthanides**:**Position in periodic table,Electronic structure, oxidation state, ionic and atomic radii- lanthanide contraction- cause and consequences, anomalous behavior of post lanthanides-complexation- type of donor ligands preferred. Magnetic properties-paramagnetism.Colour and spectra, f-f transitions –occurrence and separation – ion exchange method, solvent extraction.

Chemistry of actinides- general features – electronic configuration, oxidation state, actinide contraction, colour and complex formation. Comparison with lanthanides.

S3-I-2: Symmetry of molecules   **5 h**

Symmetry operations and symmetry elements in molecules. Definition of Axis of symmetry types of C_n, Plane of symmetry (σh, σv, σd) Center of symmetry and improper rotational axis of symmetry (S_n). Explanation with examples.

S3-I-3: Non – aqueous solvents   **4 h**
Classification and characteristics of a solvent.Reactions in liquid ammonia – physical properties, auto-ionisation, examples of ammono acids and ammono bases.Reactions in liquid ammonia – precipitation, neutralization, solvolysis, solvation - solutions of metals in ammonia, complex formation, redox reactions. Reactions in HF – autoionisation, reactions in HF – precipitation, acid – base reactions, protonation.

Unit - II (Organic chemistry)   **15 h (1 hr/week)**

S3-O-1: Alcohols   **6 hrs**
Preaparation: 1°, 2° and 3° alchols using Griganard reagent, Ester hydrolysis, Reduction of Carbonyl compounds, carboxylic acids and esters. Physical properties: H-bonding, Boiling point and Solubility. Reactions with Sodium, HX/ZnCl$_2$ (Lucas reagent), esterification, oxidation with PCC, alk.KMnO$_4$, acidic dichromates, conc. HNO$_3$ and Oppenauer oxidation.
Diols: Pinacol - pinacolone rearrangement
Phenols: Preapartion: (i) from diazonium salts of anilines, (ii) from benzene sulphonicacids and (iii) Cumenehydroperoxide method.
Properties: Acidic nature, formation of phenoxide and reaction with R-X, electrophilic substitution nitration, halogenation and sulphonation. RiemerTiemann reaction, Gattermann-Koch reaction, Azo-coupling reaction, Schotton-Boumannraction, Houben-Hoesch condensation, FeCl$_3$ reaction.

S3-O-2: Ethers and epoxides 2hrs

Nomenclature, preparation by (a) Williamson's synthesis (b) from alkenes by the action of conc. H_2SO_4.Physical properties – Absence of Hydrogen bonding, insoluble in water, low boiling point.Chemical properties – inert nature, action of conc. H_2SO_4 and HI.

S3-O-3 Carbonyl compounds 7 h

Nomenclature of aliphatic and aromatic carbonyl compounds and isomerism.
Praparation of aldehydes & ketones from acid chloride,1,3-dithianes, nitriles and from carboxylic acids. Special methods of preparing aromatic aldehydes and ketones by (a) Oxidation of arenes (b) Hydrolysis of benzal halides Physical properties – absence of Hydrogen bonding. Keto-enol tautomerism, polarisability of carbonyl groups, reactivity of the carbonyl groups in aldehydes and ketones. Chemical reactivity: Addition of [a] $NaHSO_3$ (b) HCN (c)RMgX (d) NH_3 (e) RNH_2 (f)NH_2OH(g) $PhNHNH_2$ (h) 2,4DNP (Schiff bases). Addition of H_2O to form hydrate (unstable), comparison with chloral hydrate (stable), addition of alcohols - hemi acetal and acetal formation. Base catalysed reactions with mechanism- Aldol, Cannizaro reaction, Perkin reaction, Benzoin condensation, haloform reaction, Knoevengeal condensation. Oxidation reactions –$KMnO_4$ oxidation and auto oxidation, reduction – catalytic hydrogenation, Clemmenson's reduction, Wolf- kishner reduction, MeerweinPondoffVerly reduction, reduction with LAH, $NaBH_4$. Analysis – 2,4 –DNP test, Tollen's test, Fehlings test, Scihff'stest, haloform test (with equations).
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UNIT – III (Physical Chemistry) 15 hr (1h / week)

S3-P-1: Phase Rule 6 h

Statement and meaning of the terms – Phase, Component and degrees of freedom, Gibb's Phase rule, phase equilibria of one component system – water system. Phase equilibria of two-component system – Solid-Liquid equilibria, simple eutectic – Pb-Ag system, desilverisation of lead. Solid solutions – compound with congruent melting point – Mg-Zn system and incongruent melting point – $NaCl$-H_2O system.

S3-P-2:Colloids& surface chemistry 9 h

Definition of colloids.Classification of colloids. Solids in liquids (sols): preparations and properties – (including Kinetic, Optical and Electricalstability of colloids) Protective action. Hardy–Schultz law, Gold number. Liquids in liquids(emulsions): Types of emulsions, preparation and emusifier. Liquids in solids(gels); Classification, preparations and properties, General applications of colloids.
Micelles: Classification of surface active agents. Surfactant action, micellization and micellar interactions, Structure of micelles – spherical and laminar. Critical micellar concentration (CMC).Factors affecting the CMC of surfactants. Counter ion binding to micelles.
Adsorption: Types of adsorption, Factors influencing adsorption. Freundlich adsorption isotherm.Langmuir theory of unilayer adsorption isotherm.Applications**.**

Unit –IV (General Chemistry)   **15 h (1h/week)**

S3-G-1: *Nanomaterials:*   3h
Nano structured materials – Definition, size, description of graphene, fullerenes, carbonnano tubes. Synthetic techniques, bottom-up-sol-gel method, top-down, electro deposition method.Production of carbon nano tubes – arc discharge, laser vaporization methods. General applications of nano materials.

S3-G-2: Stereochemistry of carbon compounds   **10 h**
Isomerism: Definition of isomers. Classification of isomers: Constitutional and Stereoisomers - definition and examples. Constitutional isomers: chain, functional and positional isomers. Stereoisomers: enantiomers and diastereomers – definitions and examples.
Optical activity:Definition, wave nature of light, plane polarised light, optical rotation and specific rotation, chiral centers. Chiral molecules: definition and criteria - absence of plane, center and S_n axis of symmetry – asymmetric and dissymmetric molecules. Examples of asymmetric molecules (Glyceraldehyde, Lactic acid, Alanine) and disymmetric molecules (trans-1,2-dichlorocyclopropane). Molecules with constitutionally symmetrical chiral carbons (Tartaric acid) Molecules with constitutionally unsymmetrical chiral carbons (2,3-dibromopentane)Number of enantiomers and mesomers - calculation. D, L &, R, S configuration for asymmetric and disymmetric molecules (Allenes, spiro compounds and biphenyls), Cahn-Ingold-Prelog rules.Racemic mixture, Racemisation and Resolution techniques. Geometrical isomerism with reference to alkenes and cyclo alkanes– cis, trans and E, Z configuration.

S3-G-3: Conformational analysis   **2 h**
Classification of stereoisomers based on energy. Definition and examples of conformational and configurational isomers. Conformational analysis of ethane, n-butane, 1,2-dichloroethane,2-chloroethanol and methylcyclohexane
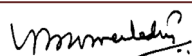
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Laboratory Course

Paper III- Quantitative Analysis - I   **45hrs (3 h / week)**
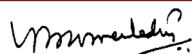
Acid - Base titrations

1. Estimation of Carbonate in Washing Soda.
2. Estimation of Bicarbonate in Baking Soda.
3. Estimation of Carbonate and Bicarbonate in the Mixture.
4. Estimation of Alkali content in Antacid using HCl.

Redox Titrations

1. Determination of Fe(II) using $K_2Cr_2O_7$
2. Determination of Fe(II) using $KMnO_4$ with sodium oxalate as primary standard.
3. Determination of Cu(II) using $Na_2S_2O_3$ with $K_2Cr_2O_7$ as primary standard

Unit-I (Inorganic Chemistry)
15h (1 h/week)

S4-I-1: Coordination Compounds-I $\qquad$ **7 h**

Simple inorganic molecules and coordination complexes.Nomenclature – IUPAC rules, 1. Brief review of Werner's theory,Sidgwick's electronic interpretation and EAN rule and their limitations.(Valence bond theory (VBT) – postulates and application to (a) tetrahedral complexes $[Ni(NH_3)_4]^{2+}$, $[NiCl_4]^{2-}$ and $[Ni(CO)_4]$ (b) square planar complexes $[Ni(CN)_4]^{2-}$, $[Cu(NH_3)_4]^{2+}$, $[PtCl_4]^{2-}$ (c) octahedral complexes $[Fe(CN)_6]^{4-}$, $[Fe(CN)_6]^{-3}$, $[FeF_6]^{4-}$, $[Co(NH_3)_6]^{3+}$, $[CoF_6]^{3-}$. Limitations of VBT).2. Coordination number, coordination geometries of metal ions, types of ligands. 3. Isomerism in coordination compounds, stereo isomerism –(a)geometrical isomerism in (i) square planar metal complexes of the type$[MA_2B_2]$, $[MA_2BC]$, $[M(AB)_2]$, $[MABCD]$. (ii) Octahedral metal complexes of the type $[MA_4B_2]$, $[M(AA)_2B_2]$, $[MA_3B_3]$ using suitable examples, (b) Optical isomerism in (i). tetrahedral complexes $[MABCD]$, (ii). Octahedral complexes $[M(AA)_2B_2]$, $[M(AA)_3]$ using suitable examples. Structural isomerism: ionization, linkage, coordination ligand isomerism using suitable examples.

S4-I-2:Organometallic Chemistry $\qquad$ **4h**

Definition, nomenclature and classification of organometallic compounds.Methods of preparation, properties and applications of alkyl and aryl compounds of Li, Mg &Al. Preparation and properties of ferrocene.

S4-I-3: Metal carbonyls and related compounds $\qquad$ **4h**

18 valence electron rule, classification of metal carbonyls: $Ni(CO)_4$, $Fe(CO)_5$, $Fe_2(CO)_9$, $Fe_3(CO)_{12}$ and $Cr(CO)_6$, Preparation and properties of $Ni(CO)4$.
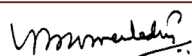
UNIT - II (Organic chemistry) $\qquad$ **15 h (1 hr/week)**

S4-O-1: Carboxylic acids and derivatives $\qquad$ **6h**

Nomenclature, classification and methods of preparation a) Hydrolysis of Nitriles, amides and esters. b) Carbonation of Grignard reagents. Special methods of preparation of Aromatic Acids.Oxidation of the side chain of Arenes.Hydrolysis of benzotrichlorides.Kolbe reaction. Physical properties- hydrogen bonding, dimeric association, acidity – strength of acids with the examples of trimethyl acetic acid and trichloro acetic acid, Relative differences in the acidity of Aromatic, aliphatic acids& phenols. Chemical properties – Reactions involving H, OH and COOH groups -salt formation, anhydride formation, Acid halide formation, Esterification (mechanism) & Amide formation. Reduction of acid to the corresponding primary alcohol - via ester or acid chloride.Degradation of carboxylic acids by Huns Diecker reaction, Schmidt reaction (Decarboxylation).Arndt – Eistert synthesis, Halogenation by Hell – Volhard - Zelensky reaction.Carboxylic acid Derivatives – Reactions of acid halides, Acid anhydrides, acid amides and esters (mechanism of ester hydrolysis by base and acid).

S4-O-2: Synthesis based on Carbanions 3h

Acidity of α-Hydrogens of withdrawing groups, structure of carbanion. Preparation of Acetoacetic ester (ethylacetoester) by Claisen condensation and synthetic application of Aceto acetic ester. (a) Acid hydrolysis and ketonic hydrolysis: Butanone, 3-Methyl 2-butanone. Preparation of (i) monocarboxylic acids ii) dicarboxylic acids (b) malonic ester – synthetic applications. Preparation of (i) substituted mono carboxylic acids and (ii) substituted dicarboxylic acids.

S4-O-3 Nitro hydrocarbons: 6 h
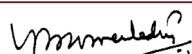
Nomenclature and classification of nitro hydrocarbons. Structure. Tautomerism of nitroalkanes leading to aci and keto form. Preparation of Nitroalkanes. Reactivity - halogenation, reaction with HNO_2 (Nitrous acid), Nef reaction, Mannich reaction, Michael addition and reduction. Aromatic Nitro hydrocarbons: Nomenclature, Preparation of Nitrobenzene by Nitration. Physical properties, chemical reactivity – orientation of electrophilic substitution on nitrobenzene. Reduction reaction of Nitrobenzenes in different media.

Unit – III (Physical Chemistry) 15 hr (1h / week)

S4-P-1: Electrochemistry & EMF 15 h

Electrical transport – conduction in metals and in electrolyte solutions, specific conductance and equivalent conductance, measurement of equivalent conductance, variation of specific and equivalent conductance with dilution. Migration of ions and Kholrausch's law, Arrhenius theory of electrolyte dissociation and its limitations, weak and strong electrolytes, Ostwald's dilution law, its uses and limitations. Debye-Huckel-Onsagar's equation for strong electrolytes (elementary treatment only). Transport number, definition and determination by Hittorf's method for attackable electrodes. Applications of conductivity measurements: Determination of degree of dissociation, determination of K_a of acids, determination of solubility product of a sparingly soluble salt, conductometric titrations.

Electrolyte and Galvanic cells – reversible and irreversible cells, conventional representation of electrochemical cells. EMF of a cell and its measurement. Computation of EMF. Types of reversible electrodes- the gas electrode, metal-metal ion, metal-insoluble salt and redox electrodes. Electrode reactions, Nernst equation, cell EMF and single electrode potential, standard Hydrogen electrode – reference electrodes (calamel electrode) – standard electrode potential, sign conventions, electrochemical series and its significance.

Applications of EMF measurements, Calculation of thermodynamic quantities of cell reactions (ΔG, ΔH and K). Determination of pH using hydrogen electrode, glass electrode and quinhydrone electrode, Solubility product of AgCl. Potentiometric titrations.

Unit –IV (General Chemistry)   **15 h (1h/week)**

S4-G-1: Pericyclic Reactions   **5 h**

Concerted reactions, Molecular orbitals of ethene,1,3-butadiene and allyl radical. Symmetry properties, HOMO, LUMO, Thermal and photochemical pericyclic reactions.Types of pericyclic reactions – electrocyclic, cycloaddition and sigmatropic reactions – one example each and their explanation by FMO theory.
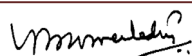
S4-G-2: Synthetic Strategies   **5 h**

Terminology – Target molecule (TM), Disconnection approach – Retrosynthesis, Synthon, Synthetic equivalent (SE), Functional group interconversion (FGI), Linear, Convergent synthesis. Retrosynthetic analysis of the following molecules: 1) acetophenone 2) cyclohexene and 3) phenylethylbromide.

S4-G-3: Asymmetric synthesis   **5 h**

Definition and classification of stereoslective reactions: substrate, product stereoselectivereactions, enantio and diastereo selective reactions. Stereospecific reaction – definition – example – dehalogenation of 1,2-dibromides induced by iodide ion. Enantoselective reactions – definition – example –Reduction of Ethylacetoacetate by Yeast.Diastereoselective reaction-definition-example:Acid catalysed dehydration of 1-phenylproponal and Grignard addition to 2-phenyl propanal. Definition and explanation of enantiomeric excess anddiastereomeric excess.

References:

Unit- I
1. Principles of Inorganic Chemistry by Puri, Sharma and Kalia Vishal Publications
2. 1996.
3. Concise Inorganic Chemistry by J.D. Lee 3rdedn.
4. Basic Inorganic Chemistry by F.A.Cotton, G.Wilkinson and Paul.L.Gaus 3rdedn Wiley Publishers 2001.
5. Inorganic Chemistry Principles of structure and reactivity by James E.Huhey, E.A. Keiter and R.L. Keiter 4thedn.
6. Chemistry of the elements by N.N.Greenwood and A. Earnshaw Pergamon Press 1989.
7. Inorganic Chemistry by Shriver and Atkins 3rdedn Oxford Press 1999.
8. Textbook of Inorganic Chemistry by R Gopalan

Unit- II
1. Text book of organic chemistry by Soni.
2. General Organic chemistry by Sachin Kumar Ghosh.
3. Text book of organic chemistry by Morrison and Boyd.
4. Text book of organic chemistry by Graham Solomons.
5. Text book of organic chemistry by BruiceYuranisPowla.
6. Text book of organic chemistry by C N pillai

Unit III
1. Principles of physical chemistry by Prutton and Marron.
2. Text Book of Physical Chemistry by Soni and Dharmahara..
3. Text Book of Physical Chemistry by Puri and Sharma.
4. Text Book of Physical Chemistry by K. L. Kapoor.
5. Physical Chemistry through problems by S.K. Dogra.
6. Text Book of Physical Chemistry by R.P. Verma.
7. Elements of Physical Chemistry byLewisGlasstone.
8. Industrial Electrochemistry, D. Pletcher, Chapman & Hall

Unit IV
1. Text book of organic chemistry by Morrison and Boyd
2. Text book of organic chemistry by Graham solomons
3. Fundamentals of organic synthesis and retrosynthetic analysis
4. by Ratna Kumar Kar
5. Organic synthesis by Dr. Jagadamba Singh and Dr. L.D.S. Yadav
6. Stereochemistry of organic compounds by D. Nasipuri
7. Organic chemistry by Clayden, Greeves, Warren and Wothers
8. Fundamentals of Asymmetric Synthesis by G. L. David Krupadanam

Laboratory Course

Paper IV- Quantitative Analysis - II   **45hrs (3h/ week))**

1. Conductometry titrations:
        i) Strong acid Vs Strong base;
        ii) Weak acid Vs Strong base.
2. Potentiometry titration:
        i) Strong acid Vs Strong base;
        ii) Weak acid Vs Strong base.
3. Estimation of Nickel by back titration (Standard $MgSO_4$ solution will be given)
4. Estimation of Barium as Barium Sulphate

Scheme of examination

SEMESTER –I

Internal examination: [**Best of 2** –Internal exam-I, Internal exam-II]

In each exam – No. of questions –10   Total marks–20   Duration of exam –1Hr

(**Two** Questions compulsory from each unit. Remaining **Two** Questions from any Unit/Units)

Main examination:

Total marks–80   Duration of exam –3Hrs

Section A- Short answers questions:

Any **EIGHT** questions from given **TWELVE** questions   (**8x4 = 32Marks**)

THREE questions from each unit.

Section B- FOUR questions (**4x12 = 48 Marks**)

– Each question consists of sub questions with Internal choice.

Q-1 from **Unit –I;   Q-2** from **Unit-II; Q-3** from **Unit-III; Q-4** from **Unit-IV**

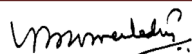## Practical examination:

Total marks–25   Duration of examination –3Hrs

Q -1: Analysis of anions - 10 Marks

One Common anion and one Interfering anion

Q -2: Preparation – 5 Marks

Record and Samples - 5 Marks;   Viva- 5 Marks.

Question paper pattern

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FACULTY OF SCIENCE

B.Sc (SEMESTER-I) EXAMINATION

CHEMISTRY

PAPER-I

</div>

Time: 3 Hours]   **[Max. Marks: 80**

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SECTION – A

Short Answer questions

</div>

1. **Answer any EIGHT questions**   **(8x4 = 32 marks)**

    a. From UNIT – I

    b. From UNIT – I

    c. From UNIT – I

    d. From UNIT – II

    e. From UNIT – II

    f. From UNIT – II

    g. From UNIT – III

    h. From UNIT – III

    i. From UNIT – III

    j. From UNIT – IV

    k. From UNIT – IV

    l. From UNIT – IV
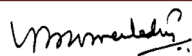
SECTION - B

Answer ALL questions   **(4 x 12 = 48 marks)**

(Essay type questions)

2.   (a)   OR   (b)   From Unit-I

3.   (a)   OR   (b)   From Unit-II

4.   (a)   OR   (b)   From Unit-III

5.   (a)   OR   (b)   From Unit-IV

FACULTY OF SCIENCE
B.Sc (SEMESTER-I) EXAMINATION
CHEMISTRY
PAPER-I

Time: 3 Hours]   [Max. Marks: 80

SECTION – A

Short Answer questions

1.   **Answer any EIGHT questions   (8x4 = 32 marks)**

   a.   Explain the diagonal relationship between Li & Mg, Be & Al.

   b.   Describe the synthesis and structure of Borazole.

   c.   Explain the general physical characteristics of groups I & II elements.

   d.   Define inductive effect. Explain any two of its applications.

   e.   Compare the acidity of carboxylic acids and phenols and write the suitable reason.

   f.   Write the mechanism for free radical substitution reaction with suitable example.

   g.   Write a short note on crystal-defects.

   h.   Describe the liquefaction of gas by Linde's method.

   i.   Define liquid crystals and write its applications.

   j.   Define the terms enantiomers and diastereomers and write one example to each.

   k.   Define solubility product and write it's equation for CaF_2.

   l.   Write E, Z- forms of 3-methylhex-3-ene.

SECTION - B

Answer ALL questions   (4 x 12 = 48 marks)

(Essay type questions)

2.   (a). Describe Any two preparation methods of Diborane and write its chemical properties.

OR

   (b). Write the preparation methods and chemical properties of hydrazine.

3. (a). Write any two methods of preparation of alkenes. Explain Diels-Alder reaction.

OR

(b). Explain the reactivity and orientation in electrophilic substitution reactions on phenol.

4. (a). Derive Vander Waal's equation of state and write about the factors 'a' and 'b'.

OR

(b) Write a note on symmetry elements in solids.

5. (a) What are conformational and configurational isomers? Write at least one example to each.

OR

(b) Define common ion effect and its applications in salt analysis.

PRACTICAL EXAMINATION
B.Sc-I YEAR   SEMESTER–I
CHEMISTRY   PAPER–I

Time: 3 Hours]   **[Max. Marks: 25**

Q -1: Analyze one common anion and one interfering anion present in a given mixture. (10M)

Q -2: Prepare a pure sample of ferrous ammonium sulphate .   (5 M)

Q -3*: Write very short answers for the following questions.   (5x1=5M)

1. What are the ions separated by using acidified silver nitrate solution?

2. Which anion is identified by using neutral ferric chloride solution?

3. What are the anions present in the soluble group?

4. Write any two interfering anions.

5. Why lime water turns milky on passing CO_2 gas? Give the corresponding chemical equation.

Record and Samples- 5 Marks.

* (From question bank supplied by Department of chemistry, kakatiya university)

INTERNAL ASSESSMENT

Model paper   **B.Sc I YEAR   SEMESTER-I**

CHEMISTRY

 Time: 90min]   **[Max. Marks: 20**

Answer all the following questions   **(10 x 2 = 20 marks)**

1. Describe the structure of diborane.

2. Write the applications of silanes.

3. Write the reactions for 1,2 and 1,4 addition of HBr to 1,3 – butadiene.

4. Why phenols are more acidic than alcohols.

5. Write any two examples for elecrophilic substitution reactions.

6.   What is Joule Thomson effect?

7. Define extrinsic and intrinsic semiconductors.

8. Write the examples for asymmetric and disymmetric molecules.

9. Define meso form and write the suitable example.

10. Write the group reagents for identification of I and II group cations.

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KAKATIYA UNIVERSITY, WARANGAL

U.G. SYLLABUS FOR THE YEAR OF 2018-2019
B.A., B.Com., B.Sc., (I-Yr - I-Sem) Hindi Second Language

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- Curriculum year wise prepared in **2009-10**
- Latest Revision of the curriculum semester wise was prepared in **2016-17**

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GADHYA DARPAN – LESSONS

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01.	Utsaah	Ram Chandra Shukla
02.	Charitra Sangathan	Babu Gulaab Raai
03.	Baazaar Darshan	Jainendra Kumar
04.	Bhaabhi	Mahadevi Varma
05.	Bharat mein Saanskriti Sangam	Ramdhari Singh 'Dinkar'
06.	Raashtra kaa Swaroop	Vasudev Sharan Agrawal

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KATHA SINDHU – LESSONS

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01.	Sadgati	Premchand
02.	Chhotaa Jaadoogar	Jai Shankar Prasad
03.	Sach Kaa Soudaa	Sudarshan
04.	Praayashchitt	Bagwati Charan Varma
05.	Pardaa	Yashpaal
06.	Chief Ki Daawat	Bheeshma Saahani

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GRAMMER

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I) Rewriting of sentences as directed based on Gender, Number, Tense, Case & Voice.

II) Correction of Sentences

III) Usages of words into Sentences.

IV) Official Hindi, Administrative Terminology (Prashaasnik Shabdaavali) Official Designations (Padnaam) 200 words.

 a) Translation of Hindi words into English

 b) Translation of English words into Hindi.

Reference books recommended by the committee:

1) Saral Hindi Vyaakaran : Dakshin Bharat Hindi Prachaar Sabhaa.

2) Hindi Vyaakaran : Shyam Chandra Kapoor.

3) Prathamik Vyaakaran Evam Rachanaa : Harish Chandra.

KAKATIYA UNIVERSITY, WARANGAL

U.G. SYLLABUS FOR THE YEAR OF 2018-2019

B.A., B.Com., B.Sc., (I-Yr - II-Sem) Hindi Second Language

GADHYA DARPAN – LESSONS

07.	Dharati kaa Swarg	Vishnu Prabhakar
08.	Taayee	Vishwambhar nath Sharma 'Kaushik'
09.	Ande ke Chhilake	Mohan Rakesh
10.	Rajneeti kaa bantwaaraa	Harishankar Parsaai
11.	Swami Vivekaanand	Vamshidhar Vidyaalankar
12.	Paryaavaran aur hum	Rajeev Garg

KATHA SINDHU – LESSONS

07.	Dipty Collectori	Amarkant
08.	Gadal	Raangeya Raaghav
09.	Hansoo Yaa Roun	Vinayak Rao Vidyaalankar
10.	Waapasi	Usha Priyamwadaa
11.	Sevaa	Mamataa Kaaliyaa
12.	Siliyaa	Susheelaa Takbhore

GRAMMER

V) Sandhi Vichched

VI) Antonyms (Vilom Shabd)

VII) Letter Writing : Personal Letters, Official Letters, Letter of Complaints, Application for Appointment.

Reference books recommended by the committee:

1) Saral Hindi Vyaakaran : Dakshin Bharat Hindi Prachaar Sabhaa.
2) Hindi Vyaakaran : Shyam Chandra Kapoor.
3) Prathamik Vyaakaran Evam Rachanaa : Harish Chandra.

B.A., B.Com., B.Sc., (II-Yr - IV-Sem) Hindi Second Language

KAVYA NIDHI

I)

09.	Meera Bai	Meera ke pad
10.	Raheem	Raheem ke dohe
11.	Bihaari	Bihari ke dohe
12.	Sooryakant Tripathi 'Nirala'	Bhagwan Buddh ke prati
13.	Mahadevi Varma	Ve muskaate phool nahin
14.	Ramdhari Singh 'Dinkar'	Kalam aur Talwaar
15.	Harivansh Rai Bachchan	To kyon baith gaya hai path par
16.	Agyeya	Anubhav paripakva

II) **Hindi Sahitya ka Itihas :** Main tendencies of the following ages

3) Shrinagaar Kaal : Naamkaran, Paristhitiyaan, Pravrittiyaan

4) Aadhuni Kaal :

a) Bhartendu Yug, Dwivedi Yug, Chchyaawaad, Pragatiwaad, Prayogwaad.

b) Hindi Gadya kaa Vikaas, Hindi Kahaani, Upanyaas aur Naatak.

III) **Brief study of the following authors and poets.**

Meera Bai

Raheem

Bihaari

Mahaveer Prasad Dwivedi

Premchand

Nirala

Mahadevi Varma

Harivansh Rai Bachchan

Agyeya

IV)   Essays on General topics :

Vidyaarthi aur Anushaasan

Aaj ki Shiksha neeti

Bharat mein Beroazgaari ki Samasyaa

Paryaavaran aur Pradooshan

Bharat mein Badhati huyi jan Sankhyaa

Bharatiya Sanskriti

V)   Comprehension

Reference books:

1) Hindi Sahitya kaa Itihas – Prof. T. Mohan Singh
2) Hindi Sahitya kaa Sankshipt Itihas – Dr. Vidya Sagar Dayal
3) Hindi Sahitya kaa Sankshipt Itihas – Dr. Tej Narayan Jaiswal
4) Hindi Sahitya kaa Subodh Itihas – Gulab Rai