

Syllabus of courses offered during 2017 – 2018

J. S. Sawant
19/01/2021

Bachelor of Commerce (B.Com) Semester-I

1 -Financial Accounting-I

Unit – I Financial Accounting

Meaning, objectives and principles of Accounting, Accounting concepts & Conventions, Accounting Standards- AS 1 to AS 10. Final accounts of Sole Traders. **(Theory & Numerical)**

Unit – II Hire Purchase Accounts

Meaning of Hire Purchase Accounts, Features, Merits and Demerits of Hire Purchase System, Distinction between Hire Purchase and Instalment System.
(Theory & Numerical Excluding Instalment System and Repossession of Assets)

Unit – III

Final Accounts of Co - Operative Societies: (As per Maharashtra Co-Operative Societies Act 1960)- Introduction, Types of Co-operative societies Preparation of Trading & Profit and Loss A/C and Balance Sheet. **(Theory & Numerical)**

Unit – IV

Joint Venture Accounts

Meaning, Distinction between Joint venture and Partnership, Methods of joint venture accounting. **(Theory & Numerical on Centralized & Decentralized Method)**

The Financial year ends on 31st March.

2: Business Organization

Unit – I

Nature and scope of business: Meaning and definition of business, characteristics, objectives of business, classification of business activities, Industry, Service, Commerce & Trade. Social Responsibility of Business towards different groups.

Unit – II

Forms of Business Units: Meaning, Characteristics, Advantages and Disadvantages of Sole Trader, Partnership, One Person Company, Private Company, Joint Stock Company- Concept, Classification, Service sector business: - meaning, types including BPO and KPO, advantage its role in economy

Unit - III

Organization: Meaning, Definition ,Concept and functions of Organization, Principles of Organization, Types of Organization- Line and Staff, Modern types of organizations- Project, Matrix, Formal and Informal Organization, Advantages and Disadvantages.


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Unit IV

Recent Trends in Business Organization: Internal constituents of the Business Organization; key managerial personnel (KMP); chairman- qualities of a chairman, powers, responsibilities and duties of a chairman; chief executive officer (CEO), role and responsibilities of the CEO; E-commerce, E-business, E-banking.

3: Company Law

Level of Knowledge: - Basic Conceptual Knowledge.

Objective: To make aware the students with basic concept of company law[The Company Act 2013 with Amendments up to June 2016]

UNIT – II

- (i) Background of New Company Act 2013.
- (ii) Corporate Personality – Company, Meaning of Company, Characteristics of a Company, Lifting of Corporate Veil
- (iii) Kinds of Company- Private Company, Public Company, Company limited by Share, Company Limited by guarantee, Unlimited Company, Association not for profit, Government Company, Foreign Company, Holding and Subsidiary and associate company with features of all kinds of company.
- (iv) Promotion and incorporation of company- stages in formation and incorporation of company, registration and commencement of business, Certificate of Incorporation

UNIT – II

- (i) Memorandum of Association- Meaning, Definition, Importance and Content of Memorandum of Association.
- (ii) Articles of Association – Meaning, Definition, Importance and content of Articles of association.
- (iii) Private Placement and Prospectus: Meaning and definition of private placement and prospectus, public offer, types of prospectus- Deemed prospectus, Shelf prospectus, Red Herring Prospectus, Abridge prospectus.
- (iv) Misrepresentation in prospectus, Consequences of misrepresentation and remedies for misrepresentation in prospectus.

UNIT- III

- (i) Share and share capital- Meaning and nature of capital and share capital, kinds of share-equity, preference, sweat equity, bonus, employee stock option scheme, and Right issue.
- (ii) Debt Capital (Borrowing and Debenture)- Meaning and nature of debt and debtcapital, Types of different types of borrowing
- (iii) Difference between- Share and debenture, owned capital and debt capital.
- (iv) Depositories and dematerialization of securities- meaning and nature of depositories, procedure of dematerialization of securities.


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UNIT – IV

- (i) Membership in a company – Meaning of shareholder and member, distinction between shareholder and member, kinds of member.
- (ii) Procedure to become member and shareholder of a company, Concept of Transfer and Transmission of Securities (Share and Debenture)
- (iii) Directors – Meaning, Appointment, Power and Duties, Managing Director and Whole Time Director – Appointment and Qualification


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4: Business Economics – I

Unit I: Nature and Scope of Business Economics

Business Economics-Meaning, scope and objectives of business economics. Nature and types of business decisions. Role and social responsibility of business & business economist. Micro and Macro Economics- Definition, scope, merits and demerits.

Unit II: Theory of Consumption

Law of Demand, Demand determinants, Changes in demand, Indifference Curve Concept-Definition, properties, importance of indifference curves. Elasticity of Demand-Concept, definition, kinds, measurement of elasticity of demand, Factors influencing elasticity of demand, Importance of elasticity of demand. Demand Forecasting- Meaning, need, importance, methods of demand forecasting.

Unit III: Theory of Production

Concept of Production Function- Concept, definition, Types of Products, Total Production, Average Production, Marginal Production. Law of Variable Proportions- Assumptions, significance & limitations. Isoquant Curves- Definition, general properties of Isoquant curves, Expansion Path. Law of Returns to Scale, Internal and External Economies and Diseconomies of Scale, Ridge Lines. Theories of Population - Malthusian Theory of Population, Optimum Theory of Population, Demographic Transition Theory of Population and Criticisms. Law of Supply.

Unit IV- Theory of Cost and Revenue

Law of Supply & Criticisms, Factors influencing supply. Concept of Cost in the Short & Long Run- Accounting Cost, Economic Cost, Opportunity Cost, Fixed Cost, Variable Cost, Direct and Indirect Costs, Real Cost, Explicit & Implicit Costs, Money Cost, Total Cost, Average Cost, Marginal Cost, Selling Costs. Revenues - Total Revenue, Average Revenue, Marginal Revenue and their Relationship.

5-Compulsory English

Unit –I Short Stories:

1. The Gifts by O Henry
2. The Quality by J. Galsworthy
3. The Axe by R. K. Narayan

Unit –II Poems:

1. You turned away yourself by Kabir
2. Mending wall by Robert Frost
3. Unknown Citizen by W.H. Auden

Unit –III Essays:



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1. Tolerance by E.M. Forster
2. The Philosophy of Pleasure by Fulton J. Sheen
3. On Painted Face by A. G. Gardiner

Unit –IV

A) I) Synonym/Antonym of Given words (Match the following format)

II) One Word Substitute

B) Business Correspondence:

Job Application Letter, Interview Call Letter, Job Offer Letter

C) Comprehension of an Unseen Passage

D) Precis Writing

6-Marathi

प्रश्न क्र.	घटक क्र.	अभ्यासक्रम	गुण	शेरा
१	१	समकालीन राष्ट्रीय, सामाजिक समस्यावर आधारित (चार पर्यायांपैकी एका विषयावर, शब्द मर्यादा-४००)	२०	
२	२	गद्य विभाग : पाठ्य पुस्तक : भाषा दर्शन भाग एक १. लोकशाहीचे अवितल्य (डॉ. बाबासाहेब आंबेडकर) २. लौक (प. भा. भावे) ३. अस्पृश्यांचा आधारवड (शिवाजी सावंत) ४. बेगड (योगीराज वाघमारे) ५. उन्हा (वि. स. जोग)	३५	
३	३	पद्य विभाग : पाठ्य पुस्तक : भाषा दर्शन भाग एक १. जानेश्वरांच्या विराण्या (संत जानेश्वर) २. मन (बहिणाबाई चौधरी) ३. गणपतवाणी (बा. सी. मर्ढकर) ४. गिरणीची लावणी (नारायण सुर्वे) ५. माउली भुकेले बेट (सुधाकर गायधनी)	३५	
४	४	व्यावहारिक मराठी १. पत्रलेखन २. इतिवृत्त लेखन	१०	

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7-Hindi

Unit	Particulars
Unit - 1	निबंध
Unit - 2	गद्य विभाग - पाठ्यपुस्तक साहित्य विधिका
1)	गणेश (निबंध) नामवर सिंह
2)	सच्ची विरता (निबंध) सरदार पूर्णसिंह
3)	कफन (कहानी) प्रेमचंद
4)	चीफ की दावत (कहानी) भीष्म साहनी
5)	शरणागत (कहानी) वृन्दावनलाल वर्मा
Unit - 3	पद्य विभाग
इकाई - 1)	कबीर के दोहे कबीरदास
2)	बाल-लीला सुरदास
3)	भक्ति, नीति के दोहे बिहारी
4)	वर दे, वीणादिनी वर दे । सूर्यकांत त्रिपाठी 'निराला'
5)	हिमाद्रि तुंग शृंग से जय शंकर प्रसाद

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Unit	Particulars	From
5	बादल को घिरते देखा है नागार्जुन	
Unit - 3	पारिभाषिक शब्दावली वाणिज्य सम्बन्धी पारिभाषिक शब्द	
1)	Affiliated	
2)	Agriculture	
2)	Abbreviation	
4)	Allowance	
5)	Indigenous Bank	
6)	Borrowing	
7)	Consignment	
8)	Expansion	
9)	Indemnity	
10)	Voyage etc.	
Unit - 5	कल्पना विस्तार	
1)	जैसा देश वैसा भेष ।	
2)	पराधीन सपने हूँ सुख नाही ।	
3)	जहाँ सुमति वहाँ नाना सम्पति ।	
4)	कर्म बिना सिद्धान मिथ्या है।	
5)	नेत्रदान महादान	
6)	जो जैसा करता है वैसा भरता है ।	
7)	परिवर्तन ही गति है ।	
8)	सॉच को आँच नाही ।	
9)	एकता में बल होता है ।	
10)	भय मनुष्य का सबसे बड़ा शत्रु है ।	

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8 - Supplementary English

Unit 1- Prose

1. A New Star Rises- Jawaharlal Nehru
2. Mahatma Gandhi- Louis Fischer
3. Jagdish Chandra Bose- Aldous Huxley
4. My Greatest Olympic Prize- Jesse Owens
5. Eating for Health- Rajkumari Amrit Kaur

Unit 2 - Poetry

1. Virtue- George Herbert
2. Solitude- Alexander Pope
3. How Sleep the Brave- William Collins

Non-Textual portion-

Unit 3 – Writing Skills

(A) Social Correspondence:

Letter of Congratulations, Letter of Condolence, Informal Invitation

(B) Writing Classified Advertisements

Unit 4 – Grammar

Spotting errors in the use of - (1) Articles (2) Subject-Verb Agreement

Prescribed Text- *Zenith-* An Anthology of Prose and Poetry (Raghav Publishers)


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Bachelor of Commerce (B.Com) Semester-II

9: Statistics and Business Mathematics

Unit – I Statistics & Measures of Central Tendency

Meaning, Scope, Importance, Functions and Limitations of Statistics. Collection of data, Tabulation and Classification, Frequency distribution.

Mean, Median, Mode, Geometric Mean and Harmonic Mean (**Theory & Numericals**)

Unit – II

Dispersion- Meaning and significance of dispersion, Methods of measuring dispersion, Mean Deviation, Standard Deviation, Quartile Deviation, co-efficient of variation (**Theory & Numericals**)

Unit – III

Skewness-Absolute Measures of Skewness, Relative Measures of Skewness, Karl Pearson's Coefficient of Skewness, Bowley's Coefficient of Skewness. (**Numericals**)

Unit – IV

Business Mathematics:- Ratio Proportion, Percentages, Simple & Compound Interest, Profit/ Loss. (**Numericals**)

10: Business Management

Unit I

Introduction: Meaning, Definition ,concept and types of management. Principles of business Management. Scope and significance of business management. Process of business management. Function of business Management. Management as science or art.

Unit II

Planning: - Meaning, Nature and Characteristics, Importance, Types & Components of Planning. **Decision Making:** Meaning, characteristics & importance of decision making. Traditional and Modern techniques of Decision-Making.

Unit – III

Delegation of Authority:— Meaning, Elements, Advantages, & Obstacle of Delegation of Authority. Centralization and decentralization of authority and its merits and demerits.

Co-ordination & Controlling: Meaning, Concept and principles of Coordination, Internal & External Coordination. Meaning, concept and elements of control.



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Unit IV

Recent trends in management:

Management of Change Management of Crisis, Total Quality Management, Stress Management, International Management.

11 : Secretarial Practice

Level of Knowledge: - Book Conceptual Knowledge.

Objective: To make aware the student with various function, duties and responsibilities of company secretary and Secretarial Practice

[The Company Act 2013 with Amendments up to June 2016]

UNIT – I

- (i) Procedure for Incorporation of Companies, Conversion of Companies – Private Limited to Public Limited and Public Limited to Private Limited
- (ii) Procedure for Alteration of Memorandum of Association and Article of Association
 - (i) Company Secretary – Meaning, Qualification and Functions/ Role
 - (ii) Directors – Procedure for Appointment of Directors and Director's Identification Number (DIN)- allotment and surrender

UNIT- II

- (i) Types and characteristics of company meeting, statutory, board, general and extra ordinary meeting, and meetings of committee of director.
- (ii) Agenda, Notice and provision regarding quorum of Board meeting, Annual General Meeting and Extra ordinary General Meeting
- (iii) Voting and resolution- Meaning of poll, postal ballot and E-Voting, Meaning of ordinary and Special Resolution.
- (iv) Circular Resolution, Explanatory statement, Ordinary and special Business to be transacted in meetings.

UNIT – III

- (i) Report Writing - Essential and content of Board Report and Annual Report.
- (ii) Concept of secretarial audit, Secretarial standards, corporate social responsibility and corporate governance, National Financial Reporting Authority.
- (iii) E-Governance and E-Filing- Meaning, features and procedure of E-Governance and E-Filing, MCA-21

UNIT – IV

- (i) Key managerial personnel- Appointment and function of managing director, whole time director and manager.
- (ii) Procedure for appointment of Additional Directors, Alternate Directors, Nominee Directors.



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- (iii) Managerial Remuneration - Remuneration of managing director, whole time director or manager.
- (iv) Provisions regarding resignation, removal of directors, Casual vacancy


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12 : Business Economics – II

Unit I: Market Structure

Meaning, Definition, Classification of Market Structures. Firm & Industry- Meaning, Difference between Industry and Firm. Pricing of Products-Types, Cost-based pricing, Customer-based pricing, Competitor-based pricing.

Unit II: Perfect & Imperfect Competition Markets

Definition, Features, Price-output determination under Perfect Competition Market. Monopoly - Definition, Features, Types, Price determination under Monopoly. Concept of Price Discrimination .Monopolistic Competition- Meaning, Features, Price determination under Monopolistic Competition.

Unit III: Theories of Distribution

Theory of Distribution -Modern Theory of Distribution. Theories of Rent- Ricardian theory of Rent, Modern theory of Rent, Concept of Quasi Rent. Theory of Wages- Marginal Productivity theory of Wages with Criticisms, Nominal & Real wages. Theories of Interest-Loanable Funds Theory of Interest, Liquidity Preference Theory of Interest, Criticisms, Concept of Gross Interest & Net Interest. Theories of Profit- Dynamic Theory of Profit, Innovation Theory of Profit, Criticisms of the Theories, Gross Profit & Net Profit.

Unit IV- Business Cycles & National Income

Business Cycles-Concept, Features, Types, Phases of Business Cycles. National Income - Meaning, Concepts, Methods of Measuring National Income, Difficulties in National Income Accounting.

13-Compulsory English

Unit –I Short Stories

1. Some Day by Issac Asimov
2. Marriage is a private affair by Chinua Achebe
3. The Taxi Driver by Kartar Singh Duggal

Unit –II Poems

1. Art of Life by Tukadoji from Gramgeeta (Translation by Dr. Bhelkar)
2. Horses Graze by Gwendolyn Brooks
3. Swan and Shadow by John Hollander

Unit –III Essays



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1. Knowledge and Wisdom by Bertrand Russell
2. On education by Albert Einstein
3. What is Indianness? by Shelia Dhar

Unit –IV

A) a. Degrees of Comparison b. Words often Confused

B) Business Correspondence:

Sales Letter, Inviting Quotations, Placing Orders

C) Comprehension of an Unseen Passage

D) Essay in about 300 words on any one Topics out of the Four Given Topics [Social issues, Economic issues, Environmental issues, Personal (Reflective) essays]

14-Marathi

सत्र दुसरे

प्रश्न क्र.	घटक क्र.	अभ्यासक्रम	गुण	शेरा
१	१	आत्मवृत्तपर, वर्णनपर, विषयावर आधारित निबंध (चार पर्यायांपैकी एका विषयावर शब्द मर्यादा-४००)	२०	
२	२	गद्य विभाग : पाठ्य पुस्तक : भाषा दर्शन भाग एक १ जेट युगातील मराठी माणूस (शंतनू किलोस्कर) २ विठ्ठल तो आला आला (पु. ल. देशपांडे) ३ नवसमाजनिमित्तीचे प्रणेत: महात्मा ज्योतीबा फुले (गंगाधर पान्तावणे) ४ भरती (वसंत वऱ्हाडपांडे) ५ महालूट (संदानंद देशमुख)	३५	
३	३	पद्य विभाग : पाठ्य पुस्तक : भाषा दर्शन भाग एक १ तुकारामांचे अभंग (संत तुकाराम) २ प्रेमाचा गुलकंद (केशव कुमार) ३ पृथ्वीचे प्रेमगीत (कुसुमाग्रज) ४ स्वप्न (रोस) ५ दोन कामागारांच्या गोष्टी (लोकनाथ यशवंत)	३५	
४	४	व्यावहारिक मराठी ३. मुलाखत तंत्र ४. म्हणी व वाकप्रचार	१०	

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15-Hindi

[illegible]

16- Supplementary English

Unit 1- Prose

1. Using the Dictionary- Albert Walker and Mary R. Parkman
2. On the Rule of the Road- A.G. Gardiner
3. How I became a Public Speaker- George Bernard Shaw
4. Seeing People Off- Sir Max Beerbohm
5. The Postmaster- Rabindranath Tagore

Unit 2 - Poetry

- ## 1. The Daffodils- William Wordsworth

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2. Stopping by Woods on a Snowy Evening- Robert Frost

Unit 3 Non-Textual Portion

(A) Social Correspondence:

- Letter of Recommendation
- Letter of Introduction
- Making reservations in hotels for accommodation

(B) Note making :

- Serial or sequential format
- Tree diagram

Unit 4 – Grammar

Spotting errors in the use of- (1) Prepositions s (2) Tenses

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Bachelor of Commerce (B.Com) Semester-III

17 – : Financial Accounting – II

Unit – I

Consignment Accounts.

Meaning, Needs, Advantages and Formalities in consignment, Difference between a consignment and a sale, Performa invoice, Account Sales, Accounting Procedure of Consignment, Valuation of Consignment Stock. (**Theory & Numerical**)

Unit – II

Branch Accounts (Excluding Foreign Branch)

Meaning of Branch, Objectives of Branch Accounting, Maintenance of Accounting Records , Transactions relating to Branch. Accounting Procedure of Branch(**Theory & Numerical**)

Unit – III

Flotation of Joint Stock Companies and their Capital Structure.

Types of Shares, Methods of issue of shares, Accounting for Issue, Forfeiture of shares & reissue of forfeited shares (**Theory & Numerical**)

Unit – IV

Final Accounts of Joint Stock Companies

Introduction, Statutory provisions regarding preparation of companies final accounts. Provision for interest on debentures, Proposed Dividends, Interim Dividend (**Theory & Numerical**)

18 - Business Communication & Management

Unit – I: Introduction

Meaning, Definition and concept of Communication, Objectives of Communication, Functions of communication Written Communication, Oral Communication, Visual Communication, Audio Visual Communication, interpersonal communication, supervisory communication, grapevine communication, barrier in communication

Unit – II: Business communication

Business communication: concept, objective, elements, purpose, importance, salient feature, principles of effective business communication.

customer care communication In business

Types of business communication-company manual, house journal, placement broacher, leaflets, E MAIL . Public Relations Management- Role of public relations officer in business, group discussion,

Unit-III: Technology and business communication

Concept of Management Information System, Role of Computer in communication,

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Barriers of computerized Communication –Use of internet, website and electronic media in business communication. **Social media as a mean of communication.**

Unit-IV:

MS-office aided communication: MS Word and its application in business communication , Role of MS-Excel and MS-Power point in communication skill, MS-excel and financial presentation, MS-power point and business communication, Use of MS-power point in business meeting as a tools of effective communication.

19– III: Business Law

Unit-I

- (i) Business law : Meaning, evolution and significance
- (ii) Law relating to Contract – (Indian Contract Act-1872): important definitions, nature and kinds of contract, essentials of a valid contract, offer and acceptance, consideration, capacities of parties to contract, free consent.
- (iii) Void Agreement, Contingent Contract, Quasi Contract
- (iv) Contract of Indemnity and Guarantee, Law of Agency.

Unit-II

- (i) Law relating to Sale of Goods- (Sale of Goods Act- 1930): contract of sale of goods, Essentials of a contract of sale, concept of goods, sale distinguished from agreement to sell, difference between conditions and warranties; transfer of ownership and delivery of goods, unpaid seller - his rights against the goods and the buyer.
- (ii) Law relating to Partnership- (the Indian partnership act 1932): concept of partnership and partnership firm, types of partner, types of partnership.
- (iii) Registration of partnership firm, effect of non registration, partnership deed, duties and liabilities of partners including those of newly admitted partners, dissolution of partnership firms.

Unit-III

- (i) Law relating to Negotiable Instruments -(Negotiable Instrument Act-1881): Meaning and Definition of Negotiable instruments, Promissory Notes, Bills of Exchange and its Types, Cheques and Its types, Crossing of Cheques.
- (ii) Endorsements: Meaning and Types, Holder and Holder in due course and its rights, Discharge of Negotiable Instruments.
- (iii) Parties to a Negotiable Instrument - duties, rights, and liabilities


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(iv) Prevention of Money Laundering Act-2002: Objectives, Important Definitions and Salient Features.

Unit-IV

(i) Law relating to Consumer protection in India - (Consumer Protection Act-1986): Definition of Consumer, Importance of Consumer, Problems faced by Consumers, Consumer Protection- Need & Importance, Rights & Responsibilities of Consumer

(ii) Definitions: Complaints, Services, Defects & Deficiency, Relief available to consumer, Procedure to file complaints, ways and means of consumer protection, consumer dispute redresser agencies and procedure followed by redresser agencies.

(iv) Law Relating to Information Technology- (Information Technology Act-2000): Objectives, scope and Important Terms, Digital Signature & Electronic Records, Certifying Authority, Digital Signature Certificates, offense and Penalties.

(iv) Cyber Law: Meaning, Important Definitions, Features, Need and Importance of cyber Law in India

20- MONETARY ECONOMICS-I

Unit I: Money

Evolution, Meaning, Definition, Nature and Functions of Money. Quantity Theory of Money and Criticisms. Paper Currency & Methods of Note Issue- Fixed Fiduciary Method, Proportionate Reserve Method, Minimum Reserve Method.

Unit II: Inflation & Deflation

Inflation- Meaning, Nature, Causes, Effects, Impact of Inflation. Deflation - Meaning, Nature, Causes, Effects, Impact of Deflation. Role of Monetary Policy and Fiscal Policy in controlling Inflation & Deflation.

Unit III: Money Market & Policies

Money Market- Concept of Money Market, Objectives, Importance of Money Market, Instruments of Money Market. Monetary Policy and Fiscal Policy Concept-Meaning, Objectives, Need, Importance, Impact, Recent Changes/Trends.

Unit IV: Public Finance

Concept, Meaning, Importance of Public Finance, Principles of Public Finance, Theory of Maximum Social Advantages & Criticisms. Taxation – Definition, Characteristics & Canons. Types of Taxation- Proportional, Progressive and Regressive Taxation System. Direct and Indirect Taxes- Merits & Demerits.

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21- Compulsory English

Unit –I PROSE ITEMS FROM “BLOSSOMS”

- 1.The Portrait of a Lady - Khushwant Singh
- 2.Youth and the Tasks Ahead – Karan Singh
- 3.The Verger - W.S.Maugham
- 4.*The Eyes are not Here* - Ruskin Bond

Unit –II POEMS FROM “BLOSSOMS”

- 1.*Money Madness* – D.H.Lawrence
- 2.*The Felling of the Banyan Tree* – Dilip Chitre
3. *A River* - A.K.Ramanujan

Unit –III

- (A)Comprehension of Unseen Passage
- (B)Transformation of Sentences:
 - a.Affirmative –Negative and vice-versa
 - b.Interrogative – Assertive and vice-versa

Unit –IV

- (A) Business Correspondence:
 - Claim and Adjustment Letters* – Making Claims/Offering Adjustments
- (B)Drafting Agenda/Minutes of a Meeting


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22- Marathi

प्रश्न क्र.	घटक क्र.	अभ्यासक्रम	गुण	शेरा
१	१	पर्यावरण, आधुनिकज्ञानविज्ञान आणि प्रसार माध्यमे ह्या विषयांवर आधारित निबंध (चार पैकी एक ; शब्द मर्यादा-४००)	२०	
२	२	गद्य विभाग : पाठ्य पुस्तक : भाषा दर्शन भाग दोन १ दुःखःकांत लेकी येणें (महाडंबट) २ माझी दत्तक वडील (चि. वि. जोशी) ३ सांगावा (शंकरराव खरात) ४ शेवटची माती (आनंद यादव) ५ जनसामान्यांच्या प्रबोधनाचं गतिचक्र (बा. ह. कल्याणकर)	३५	
३	३	पद्य विभाग : पाठ्य पुस्तक : भाषा दर्शन भाग दोन १ संतवाणी (चोखामेळा, सेना न्हावी, नरहरी सोनार) २ लटपट लटपट तुझी चालणें (होनाजी बाळा) ३ माझी कन्या (बी.) ४ आभाळाची आम्ही लेकरे (वसंत बापट) ५ इथेच (यशवंत मनोहर) ६ जहर खाऊ नका (जानेश वाकुडकर)	३५	
४	४	व्यावहारिक मराठी १ प्रसारमाध्यमांसाठी वृत्तलेखन २ कल्पना विस्तार	१०	

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23- Hindi

Class	B.Com II Year III Sem	Subject	HINDI
Unit	Particulars		
	गद्य विभाग		
1)	हिम्मत और जिंदगी रामधारी सिंह दिनकर		
2)	जीवन की किताब अनंत गोपाल शेंवड़े		
3)	पर्यावरण-प्रदूषण समस्या मनोजगत की विवेकी राय		
4)	गौरा डॉ. रामकुमार वर्मा		
5)	प्रतिशोध महादेवी वर्मा		
	पद्य विभाग		
1)	विनय-पत्रिका तुलसीदास		
2)	मीरा के पद मीराबाई		
3)	रहीम के दोहे रहीम		
4)	प्रियप्रवास अयोध्यसिंह उपाध्याय हरिऔध		

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Class	B.Com II Year III Sem	Subject	HINDI
Unit	Particulars	From	
	जीवनवृत्त (Bio-Data)		
1)	जीवन-वृत्त का सामान्य परिचय दिजिए ।		
2)	जीवन-वृत्त की परिभाषा दिजिए ।		
3)	जीवन-वृत्त की विशेषताएँ बताईये ।		
4)	जीवन-वृत्त का एक सामान्य प्रारूप बनाइए ।		
5)	एक काल्पनिक जीवन-वृत्त बनाइए ।		
6)	जीवन-वृत्त के प्रकारों को स्पष्ट किजिए ।		
	1) कालानुक्रमिक रेज्यूमे		
	2) क्रियाव्यक्त रेज्यूमे		
	साक्षात्कार (Interview)		
1)	साक्षात्कार की परिभाषा दिजिए ।		
2)	साक्षात्कार के उद्देश्य बताइए ।		
3)	साक्षात्कार के प्रकारों का वर्णन किजिए ।		
4)	साक्षात्कार का महत्व स्पष्ट किजिए ।		
5)	साक्षात्कार के सिद्धांतों का वर्णन ।		
6)	साक्षात्कार की प्रमुख सीमाएँ बताइए ।		

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24- Supplementary English

Unit 1 – Prose

1. The Thief- Ruskin Bond
2. Three Hermits – Leo Tolstoy
3. The Power of Prayer- A.P.J. Abdul Kalam
4. A Tryst with Destiny- Jawaharlal Nehru

Unit 2 - Poetry

1. Still I Rise- Maya Angelou
2. Ulysses - Alfred, Lord Tennyson
3. Telephone Conversation- Wole Soyinka

Non-Textual Portion-

Unit 3- Writing Skills

A) Report Writing

- Inquiry Report
- Progress Report

(A) Expansion of an

Idea Unit 4 -

Vocabulary

(A) Business Terminology - Ad Valorem, Authorized Capital, Blue Chip, Benchmark, Credit Rating, Corporation, Debenture, Dividend, Excise Duty, Face Value, Fringe Benefits, Goodwill, Gross Profit, Inventory, Inflation, Joint Venture, Kickback, Lease, Mortgage, Patent, Portfolio, Running Costs, Surety, Social Security, Voucher

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Bachelor of Commerce (B.Com) Semester-IV

25- Financial Accounting –III

Unit – I

Final Accounts of Banking Companies

Meaning of Banking Companies, Functions of Banking, Restrictions for a Banking Company, Provision of the Banking Companies Regulation Act 1949, Preparation of Annual accounts as per Banking Companies Regulation Act 1949 as per amendment by RBI.

(Theory & Numericals)

Unit – II

Final Accounts of General Insurance Companies

Introduction, Types of General Insurance, Important Terms- Reserve for unexpired Risk, Reinsurance Claims, Reinsurance Premium, Commission, Bonus in Reduction of Premium and preparation of final accounts

(Theory & Numericals)

Unit – III

Valuation of Goodwill

Meaning, Characteristics of Goodwill, Factors influencing the value of goodwill, Need for Valuation of goodwill , Valuation of goodwill as per -Average Profit Method, Weighted Average Profit Method, Super Profit Method, Capitalization Method. **(Theory & Numericals)**

Unit – IV

Liquidation of Company.

Meaning, Types of Liquidation, Steps in Voluntary Liquidation, Functions of Liquidator, Liquidators remuneration/Commission. Preparation of Liquidator's Final Statement of Account only. **(Theory & Numericals)**

The Financial year ends on 31st March.

26- Skill Development

Unit I: Introduction:

Basic of personality, Human growth and behavior, Motivation and morality, Meaning of Skill, types; soft and hard skill, need for developing skill, human skill and behavior, Motivation and morality, skill development and employment

Unit II: Communication skills and Personality Development:

Intra-personal communication and Body Language, Inter-personal Communication and Relationships, Leadership Skills, Team Building and public speaking, Communication in English, Presentation Skills, and Quality required for good public speaker,

Unit III: Techniques in Personality development

Self confidence, Mnemonics, Goal setting, Time Management and effective planning, Stress Management, Meditation and concentration techniques, Self Motivation Self acceptance and Self growth

Unit IV : Entrepreneurial skill development

Skill development of rural industrial sectors - small scale - handloom - agro based industries, rural artisans - handicrafts and sericulture. Meaning of entrepreneurship, types skill required for entrepreneurship

27- Income Tax

Unit I: Introduction of Income Tax

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i) Basic Concepts of Income Tax, Meaning & Definition of Assesses, Assessment Year, Previous Year, Gross Total Income, Types of Assesses, Income Exempt from tax, Capital & Revenue Expenditure. Agricultural Income.

Residential Status

ii) Residential Status and its effects on Tax incidence: Residential status of Individual, HUF, Firm & Association of Person, Company, Basic Conditions & Additional Conditions. **(Theory)**

Unit II: Income from Salary

i) Definition of Salary, Allowances, Types of Allowances, Taxable Allowances, Tax Free Allowances, Partly Taxable Allowances,

ii) Perquisites, Types of Perquisites, Taxable Perquisites, Tax Free Perquisites,

iii) Types of Provident Fund, Tax treatment of P.F, E.P.F., Superannuation Fund and Computation of Salary Income/Taxable Salary and tax liability. **(Theory & Numericals)**

Unit II Income from House Property

i) Meaning of Annual Value, Fully exempted income of house property, deemed owner.

ii) Deduction from income from house property, unreleased rent, computation of income from house property. **(Theory & Numericals)**

Unit IV : i) Income Tax Slab Rates, Rebates, Income which do not form part of total Income

ii) Deduction under section 80C, 80CCC, 80CCD, 80D, 80DDB, 80E, 80G, 80GG, 80U

iii) Income from Other Sources

Income specifically included under the head of other sources, specified income, casual income, deduction allowed from the income of other sources, computation of income from other sources. **(Theory & Numericals)**

28- Monetary Economics-II

Unit I: Commercial Banking

Evolution, Meaning, Functions of Commercial Banks. Role commercial banks in a developing economy. Process of Credit Creation by Commercial Banks & its Limitations, Investment Policy of Commercial Banks. Non-Performing Assets- Meaning, Criteria and Causes.

Unit II: E-Banking & Core Banking

Meaning, Features, Advantages & Disadvantages of ATM (Automated Teller Machines.)

Meaning, Features, Merits and Demerits of Credit cards, Plastic cards, Smart cards, e-purse, Laser cards. EFT (Electron Fund Transfer), ECS (Electronics clearing system).

Unit III: Banks and Customers Relationship and Services

Introduction, Meaning of Customer. Bank & Customer Relationship- Debtor & creditor, Trustee and Beneficiary, Agent and Principal, Bailer and Bailee. Opening, operating and closing of various bank accounts. Demat Account -Advantages, Opening and Operation of Demat Account. Methods of Calculating Interest Rates on deposits and on loans.

Unit : IV Central Bank

Meaning, Objectives, Functions, Role of Central Bank. Credit Control- Meaning, Objectives, Methods : Quantitative- Bank Rate, Open Market Operations, Cash Reserve Ratio(CRR), Statutory Liquidity Ratio(SLR), Repo Rate. Qualitative – Varying margin requirement, Regulation of consumer's credit, Issuing directives, Publicity measure, Moral suasion, Credit rationing and limitations.

29- Compulsory English

Unit –I PROSE ITEMS FROM “BLOSSOMS”

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PROSE ITEMS FROM “BLOSSOMS” :

1. *Go! Kiss the World* - Subroto Bagchi
2. *The Gold Frame* - R.K.Laxman
3. *The Cabuliwallah* - Rabindranath Tagore
4. *The Struggle for an Education* - Booker T. Washington

Unit –II POEMS FROM “BLOSSOMS”

POEMS FROM “BLOSSOMS” :

1. *If* – Rudyard Kipling
2. *Stay Calm* - Grenville Kleiser
3. *Ballad of the Landlord* - Langston Hughes

Unit –III

(A) Comprehension of Unseen Passage

(B) Transformation of Sentences:

- a. Exclamatory-Assertive and vice-versa
- b. Change the Voice

Unit –IV

(A) Business Correspondence:

Credit and Collection Letters – Granting Credit/Refusing Credit, Reminders for payment

(B) Interoffice Memorandum/Office Order


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30- Marathi

प्रश्न क्र.	घटक क्र.	अभ्यासक्रम	गुण	शेरा
१	१	साहित्यविषयक निबंध (चार पैकी एक; शब्द मर्यादा- ४००)	२०	
२	२	गद्य विभाग : पाठ्य पुस्तक : भाषा दर्शन भाग दोन १ इंद्रायणीच्या वाळवंटात (श्री. म . माटे) २ मित्र (ना. सी. फडके) ३ माणसांत विरलेला माणूस (दुर्गा भागवत) ४ रामा मैलकुली (व्यंकटेश माडगुळकर) ५ प्रेम (मारोती चित्तमपल्ली) ६ विज्ञान युगात भारत (जयंत नारळीकर)	३५	
३	३	पद्य विभाग : पाठ्य पुस्तक : भाषा दर्शन भाग दोन १ दोन भारुडे (संत एकनाथ) २ विद्यार्थ्यांप्रत (केशवसुत) ३ आई (यशवंत)	३५	
		४ विचार झाला पाहिजे (वसंत आबाजी डहाके) ५ आता आम्ही (वैभव सोनारकर)		
४	४	व्यावहारिक मराठी १ स्मरणिका संपादन २. वाक्प्रचार	१०	

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B-Com IV Semester SYLLABUS

विषय : हिंदी

इकाई एक

साहित्यिक विषयों, भारतीय त्यौहारों तथा स्वास्थ्य संबंधी विषयों पर आधारित निबंध ।

इकाई दो

गद्य विभाग

1. लक्ष्मी का स्वागत - एकांकी - उपेंद्र नाथ अशक
2. अभाव - कहानी - विष्णु प्रभाकर
3. अकेली - कहानी - मन्नू भंडारी
4. घर की तलाश - कहानी - राजेन्द्र यादव
5. लकी - कहानी - ममता कालिया

इकाई तीन

पद्य विभाग

1. गीत फरोश - भवानी प्रसाद मिश्र
2. स्वर्णिम पराग - सुमित्रानंदन पंत
3. धरती स्वर्ग समान - नीरज
4. खोने को पाने आये हो - चतुर्वेदी
5. झांसी की रानी की समाधि पर - सुभद्राकुमारी चौहान

इकाई चार

अन्य पाठ्य सामग्री

1. प्रतिवेदन लेखन

अर्थ एवं परिभाषा, उद्भव और विकास, विशेषताएं, प्रकार एवं तत्व, प्रतिवेदन तैयार करते समय ध्यान रखने वाली बातें ।

2. समाचार लेखन

प्रमुख आयाम एवं प्रारूप तैयार करना, विज्ञान विचार, संसद समाचार, समाचार और संसद, अपराध के समाचार, मृत्यु समाचार, विज्ञापन समाचार आदि ।

समाचार लेखन में आवश्यक बातें- 1. शीर्ष पंक्ति 2. अच्छे समाचार की विशेषताएं, भाषा- शैली, अच्छे संवाददाता की योग्यताएं ।

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32- Supplementary English

Unit 1 - Prose

1. The Last Salvation- R.P. Sisodia
2. The Romance of a Busy Broker- O' Henry
3. Playing the English Gentleman- M.K. Gandhi
4. My Financial Career- Stephen Leacock

Unit 2 - Poetry

1. Dulce et Decorum est- Wilfred Owen
2. At the Lahore Karhai- Imtiaz Dharker
3. Leisure- W.H. Davies

Non-Textual Portion-

Unit 3 - Writing Skills

A) Report Writing

- ☐ Recommendation Report
- ☐ Situational Report about an event or function

B) Writing a dialogue with minimum 5 exchanges

Unit 4 - Vocabulary

(A) Business Terminology

(Advice Note, Arbitration, Boom, Brand, Buffer, Curriculum Vitae, Capital, Devaluation, Duty, Entrepreneur, Gilt-Edged Stock, Infrastructure, Internal Audit, Ledger, Petty Cash, Raw Data, Scrip, Social Audit, Stock Exchange, Tender, Trademark, Underwrite, Warranty, Wildcat Strike, Write-Off) (Students to give the appropriate business term for the definition/ explanation given)

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Bachelor of Commerce (B.Com) Part-III

33 - Financial Accounting–III

Unit – I

Amalgamation and Absorption of Companies.

Unit – II

Reconstruction of Companies.

(Internal and External Reconstruction of Companies)

Unit – III

Accounts of Holding Companies.

(Excluding Right Issue & Bonus Issue)

Unit - IV

Valuation of Goodwill and Valuation of Share

Unit - V

- Fire Insurance Claims.

- (Excluding Computation of Loss of Profit)

- Accounts of Public Utility Companies (Electricity, Gas and Water Supply Companies)
According to Double Accounting System.

34 - Income Tax & Auditing

Unit – I:

- **Auditing:** Nature of Auditing, Meaning & Definition, Objectives, Advantages, Principles, scope and Limitations of Auditing .Types of Auditing—Continuous Audit, Annual, Periodical Audit, Internal Audit - Definition, objectives, Advantages, Basic Principles of Internal Audit, and Auditor.
- **Audit Planning and Documentation:** Commencement of New Audit, Preparation for Audit programme, Objectives, Types of Audit programme, Advantages and Disadvantages of Audit programme.

Unit – II :

- **Auditing Techniques: - Vouching-** Meaning, Need for Vouching, Procedure of Vouching, Vouching of Cash Book, vouching of subsidiary book, Vouching of Ledgers.
- **Basic Concepts of Income Tax**
Assessment Year, Previous Year, Meaning & Definitions, GTI, Difference between Exemption & deduction, Capital & Revenue Expenditure. Due Dates of Filing return by different Assessee.

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- **Introduction of Five Heads of Income Tax & theory**
Salary, House Property, Income from Business & Profession, Capital Gains & Income from Other Sources.
- **Residential Status and its effects on Tax incidence**
(Residential status of Individual, HUF, Firm & Association of Person, Company, Basic Conditions & Additional Conditions. (Theory)

Unit-III :

- **Income from Salary**
Types of allowances (Taxable & Tax free), perquisites, and Tax treatment of P.F, E.P.F., Superannuation Fund, Allowances & Perquisites, Computation of Income from Salary and Calculation of Tax Liability. (Problems)
- **Deduction under section 80C, 80CCC, 80CCD, 80D, 80DDB, 80E, 80G, 80GG, 80U.**

Unit-IV:

- **Income from Business and profession**
Definition & Meaning of Business, Business deduction and allowances, maintenance of accounts by certain persons, Special provisions under section 44 AD and 44 AE, Depreciation U/S 32, Computation of income from business. Computation of Total Income of Individuals. (Theory/Problems).
- **Tax Return Preparers Scheme 2006 (section 139 B)**
Definition of Tax Return Preparers (TRP), Educational Qualification, Duties and Responsibilities of Tax Return Preparer, Preparation and Submission of Return of Income by TRP, Remuneration of TRP, and Information related to TRP, Function and Restriction of assesses in relation to Tax Return Preparers scheme. (Theory)

Unit-V:

- **Income House Property** -Meaning & Definition, Gross Annual Value Net Annual Value , Arrears of Rent ,Unrealized Rent, Interest on Loan Pre-construction & Post Construction, Composite Rent etc. Computation of Income from house property.
- **Income from Other Source** – Basis of Charge, Chargeable Incomes, Exempt Incomes, Computation of Income from other sources.
- (Income Tax Calculation – Rates applicable for respective Assessment year* Education Cess.)
(* N. B.- Current Academic year will be the Assessment. year)

35 - Functional Management

Unit-I

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Human Resource Function:-

- Human Resource Philosophy (Concept Scope Role and functions of HR) Human Resource planning , Recruitment , Selection, placement , Induction Training and deployment, Compensation, Job evaluation .

Unit-II**Marketing Function:-**

- Evolution of Modern concept of Marketing Market Segmentation, Basis for Segmenting consumer and industrial market, Product planning and deployment, pricing policies and strategies. Channels of Distribution.

Unit-III**Finance Function:-**

- Scope and Importance of Financial Management, Functions and Role of Financial manager, Sources of capital, cost of capital.

Unit-IV**Production Function:-**

- Meaning Nature scope and Importance of production Management. Production process, production planning and control, product Design and product Research.

Unit-V**International Business Environment:-**

- Globalization – Introduction, Significance, Nature and Scope of Global Business, Social Cultural Economic, Political and Ecological factors of Global Business Environment.

36 - Indian Economics**Unit I****Indian Economy & Planning**

- **Economic Planning:-** Characteristics Rational features, Objectives, evaluation of the objectives of economic planning and recent five year plan.
- Strategy of India's development plans: 10th, 11th plan
- The employment perspectives in 11th plan.
- Resources allocation and financing of five years plan :- way to Increase revenue and control expenditure.
- Regional planning in India – aspects of regional planning – conceptualization, Magnitude, Regional and lack of genuine regional planning in India.

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- Assessment of India planning – Basic approach, targets and achievement an appraisal.
- Achievement and short comings of Economics planning.

Unit II

Indian Economy & policy

- Concept of economic growth of Economic Development Characteristics of underdeveloped/Developing countries
- Broad features of Indian economy
- Natural resources – Land, soil, water, forest, mineral.
- Infrastructure – sources of energy in India. Power, coal, oil and Gas, Atomic, Non-conventional, Energy strategy. Transport system in India – Railways, Road, Water, Air Transport.
- India's population: Size and Growth trends future, causes and consequences on economic development, Explosion, remedies, population policy.
- Employments and unemployment :- Trends, structure, employment in India, Nature and estimates of unemployment – urban, rural, agricultural unemployment, causes, government policy for removing unemployment and Sectoral Issues

Unit III

Indian Agriculture

- Nature, Role of Agriculture in India economy
- Cropping pattern in India and its determining factors. Crop insurance and live stock insurance – problem and Remedies
- Progress of Land reform, cooperative farming
- Green resolution: impact and constraints.
- Trends in Agricultural Production and Productivity low levels and causes of low productivity, measures to increase production and productivity.
- Agriculture marketing and finance – Need and sources, agriculture finance, co-operative credit societies. NABARD (National Bank for Agriculture and Rural Development) Financial inclusion.
- Agriculture Marketing Concept Meaning Advantage, Disadvantages, problems, remedies, and Government measures to improve the system of agriculture Marketing co-operative marketing.
- Agricultural price policy – Trends, Need, Agriculture, subsidies, Public distribution system in India. Targeted public distribution system (TPDS)
- Agricultural Labour :- Definition, conditions and problems, Measures adopted by the Government, Measures for improvement.

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Unit IV

Indian Industry

- Industrial policy 1991 some major Industries - Iron and steel, jute, Textile, sugar, cement
 - Small scale and cottage industries – Definition, role, performance, importance problems, and remedies
 - Public sector industries : Role, Performance, importance, Problems, and remedies
 - Privatization of Public sector industries: meaning, methods, Evolution of privatization policy in India. Process from disinvestment and methodologies adopted and a critique of privatization and disinvestment
 - Private sector industries Meaning Role importance, problems and remedies.
-
- Industrial sickness in India – Definition, causes, consequences, remedial measures
 - Service sector: Growth, contribution of services sector in India, rapid service growth share services in employment.
 - Indian trade union movement: Concept and Meaning, Role and functions, strength and weakness.

Unit V

India's International Trade

- Foreign Trade and foreign capital :- Concept and Meaning, advantages, disadvantages, Composition and direction export policy and import policy.
- Special Economic Zones:- Concept history, benefits, arguments against SEZS, EGOM, Decision on SEZS and impact on Economics.
- Foreign capital and Aid:- Need, role, problems , non – resident deposits, India's external debt.
- Multinational corporation, Concept:- Role, importance, advantages and disadvantages of MNC's and control over MNC's, impact on economy.
- Liberalization, privatization, Globalization meaning, importance, Role and steps forwards LPG, effects, and impact on Indian economy.
- World Trade Organization (WTO) :- Objective, working and functions and Role
- Public Expenditure – classification, Role, increasing causes of Public Expenditure.
- Public debt Meaning, Concept Meaning, Classification, Role, problem and remedies.

37 - Business Finance

Unit – I

- Meaning, Nature, Significance, Objects and Scope of Business Finance, Recent Development and Reform in Finance Sector. Sources of Business

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Finance, Long- Medium and Short Term, Capital Market, Primary Market and Secondary Market.

Unit – II

- Role and Functions of Stock Exchange and SEBI. Project Financing, Venture Capital Financing, International Finance, Euro Issue, External Commercial Borrowings, Financing and Management of Small and Medium Enterprises.

Unit – III

- Meaning of Working Capital, Types, Determinants, Assessment of Working Capital Requirement, Operating Cycle. Inventory Management, Debtors Management and Creditors Management.

Unit - IV

- Dividend Policy, Essentials of Sound Dividend Policy, Determination of Dividend Policy and its types. Surplus and Reserve Policy. Cash Flow for Investment Analysis.

Unit - V

- Capital Budgeting :- Meaning, Nature and Types of Capital Budgeting, Investment Appraisal Techniques, Pay Back Period Method, Rate of return method, Net Present Value Method, Discounted Cash Flow Method,
- Leverages -Concept of Leverages, Operating and Financial Leverages.

38 - Computerized Accounting

Unit-I

- Introduction to Accounting, Advantages of accounting, Books of accounts, Classification of Accounts, Financial Statements, Inventory management, Computerized Accounting, Need of Computerized Accounting, Accounts Organization, Accounts group, Loans Liabilities, Assets and Budget.

Unit-II

- Accounting Software's Introduction to tally Software, Features of Tally Screen, Company information, Creating new Company, Gateway, Selection of Company, selection of Options, Buttons at Gateway, Working with multiple Companies, Company Features.

Unit-III

- Configuration- General, Numeric Symbols, Voucher Entry, Creation of Voucher Screen, invoice Order Entry, Printing. Accounts info menu, Account Groups-create new group, creation of primary group. Normal and advance information, Ledger Accounts, cost categories, Cost Centers. Creation of Budget, Types of budget.

Unit-IV

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- Voucher- Voucher Entry, creation of Vouchers Screen, types of Voucher, Selection of Voucher types, Post Dated Voucher, printing of Vouchers, Cheque Printing, advance Features of account Voucher. Inventory info, Features of Inventory info. Configure- Inventory Info, balance Sheet, Audit Trail, Ratio Analysis.

Unit-V

- Display-Accounting Report Display, Inventory report Display, and MIS Report Display. Printing Reports, Export of Data. Maintenance- Bank Reconciliation, House Keeping, Data Maintenance. Security- Users and Password, Security Controls, Types of Security, Creation New Security Levels and Tally Audit.

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Bachelor of Commerce Computer Application (BCCA) Semester-I

39 - English and Business Communication-I

UNIT I

- A. Comprehension of an Unseen Passage
- B. Enriching Vocabulary: Synonyms and Antonyms, Single Word for a Group of Words, Change of Word from Noun to Adjective & vice-versa.

UNIT II

Business Correspondence: Application for Employment, Job Offer Letters, Sales letters, Claim and Adjustment Letters

UNIT III

Communication Process: Sender, Channel, Message, Receiver and Response

Types of Communication:

- | | | |
|--|---------------|------------------------|
| a. According to mode: | a. Oral | b. Written |
| b. According to Medium: | a. Electronic | b. Print |
| c. According to number of participants : | a. Dyadic | b. Group |
| d. According to Direction: | a. One-way | b. Two-way |
| e. According to Purpose: | a. General | b. Business (Specific) |

UNIT IV

Textbook entitled 'Prism: Spoken and Written Communication, Prose & Poetry' published by Orient Black Swan

- i) With the Photographer – Stephen Leacock
- ii) Socrates and the Schoolmaster – F. L. Brayne
- iii) Speech on Indian Independence – Jawaharlal Nehru

Poetry

- i) On Television - Roald Dahl
- ii) The Felling of the Banayan Tree - Dilip Chitre
- iii) Stay Calm - Grenville Kleiser

40 - Financial Accounting I

UNIT – I Introduction to Financial Accounting: Accounting as an information system, Financial, cost and management Accounting and their interrelationships, Finance Function and Accounting, Accounting as an academic Discipline, Accounting as an Career and Profession, Place of Accounting Officers in the Organization, Auditing and Internal Control, Ethical Issues in Accounting, Forms of Organizations and Their Effect on Accounting, Accounting and Corporate Governance. Accounting Concepts, Standards and IFRS: Introduction ,Accounting Concepts and Convention, Accounting Policies, Generally Accepted Accounting Principles(GAAP), International Financial Reporting Standards(IFRS),Indian Accounting Standards(Ind AS),India's Road map to Convergence with IFRS, Indian Government Accounting Standards(IGAS). Presentation of Financial Statements: Balance Sheet: Conceptual Basis of a Balance Sheet, Capital and Revenue Expenditure and receipts, Classification of Item on a Balance sheet, Format of Balance Sheet, Balance Sheet Equation, Preparing Balance Sheet.

UNIT – II Preparation of final Accounts: The Income Statements: Introduction, Format of Profit and Loss Account, Profit and Loss account of a Manufacturing Concern, Appropriation of Profit, Advantages of Profit and Loss Account. Mechanics of Accounting: Introduction, Classification of Accounts, Double Entry System, Overview of Accounting cycle, Preparing journals, Subsidiary Books, Ledger, Preparation of Trial Balance, Accounting Errors and Their Rectification, Bank Reconciliation statement (BRS), Computerised Accounting. Fixed Assets and Depreciation

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Accounting: Introduction, Cost of Fixed Assets, Depreciation, Method of computing depreciation, Accounting Treatments for transactions, Impairment of Assets.

UNIT – III Inventory Valuation: Introduction, Record Keeping for Inventory, Perpetual inventory System, Inventory Valuation/Measurement, Methods of Valuation of Inventories, Analysis of Inventories. Corporate Accounts: Introduction to Companies, Types of Companies, Shares and Share Capital, Issue of Shares. Share Issue: Payments in Installment, Buyback of Shares, Debentures and Bonds, Income Statement/Profit and Loss Account, Balance Sheet, Company Annual Report. Cash Flow Statement: Introduction to Cash Flow Statement, Cash and Cash Equivalents, Cash Flow Activities, Operating Activities, Some Special Items, Free cash Flow, Fund Flow Statement, Analysis of cash Flow Statement, Preparation of cash Flow Statement.

UNIT – IV Financial Statement Analysis: Introduction Techniques for financial Statement Analysis Horizontal Analysis: Comparative and Trend Statements, Vertical Analysis: Common Size, Liquidity Ratios: Current and Quick Ratio, Solvency Ratios: D/E, Interest Coverage, Profitability ratios: (GP, NP, EBIT, EBDITA, EPS), Return Ratios: ROI, ROE, Turnover Ratios, Analysis of Stock and Debtors, Working Capital Management, Stock Prices and Financial Data: P/E. Investments: Introduction, Financial Instruments, Assets and Liabilities, Joint Ventures, Subsidiaries and Associates, Consolidated Financial Statement, Business Combinations, Accounting for Investments, Contemporary Issues in Accounting : Introduction ,Foreign Currency Accounting , Creative Accounting, Forensic Accounting , Environmental Accounting, Lean Accounting ,Human Resource Accounting, Objectives of Human resource Accounting, HRA in India, Inflation Accounting, Responsibility Accounting, Transfer Pricing, Segment reporting, Extensible business Reporting Language(XBRL).

41 - Fundamentals of Computers

UNIT – I Understanding the Computer: Introduction, Evolution of computers, Generation of computers, Classification of computers, Computing concepts, The computer system, Application of computers. Computer Organization and Architecture: Introduction, Central processing unit, Internal communications, Machine cycle, The bus, Instruction set. Memory and Storage Systems: Introduction, Memory representation, Random Access Memory, Read Only Memory, Storage systems, Magnetic storage systems, Optical storage systems, Magneto optical system, Solid-state storage devices, storage evaluation criteria.

UNIT – II Input Devices: Introduction, Keyboard, Pointing devices, Scanning devices, Optical recognition devices, Digital camera, Voice recognition system, Data acquisition sensors, Media input devices. Output Devices: Introduction, Display monitors, Printers, Impact printers, Non-impact printers, Plotters, Voice output systems, Projectors, Terminals. Computer Codes: Introduction, Decimal system, Binary system, Hexadecimal system, Octal system, 4-bit Binary Coded Decimal(BCD) Systems, 8-bit BCD Systems, 16-bit Unicode, Conversion of numbers

UNIT – III Computer Software: Introduction, Types of computer software, System management programs, System development programs, standard application programs, Unique application programs, Problem solving, Structuring the logic, Using the computer. Programming Languages: Introduction, History of programming languages, Generations of programming languages, Characteristics of good programming languages, Categorization of High-level languages, Popular High-level languages, Factors affecting the choice of languages, Developing a program, Running

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a program. Data Communication and Networks: Introduction, Data communication using modem, Computer network, Network topologies, Network protocol and software, Application of network.

UNIT – IV

Operating Systems: Introduction, History of operating systems, Functions of operating systems, Process management, Memory management, File management, Device management, Security management, Types of Operating systems, providing user interface. Popular operating systems. Microsoft Software: Introduction, MS-DOS, MS Word systems, MS Excel systems, MS PowerPoint systems, MS Access systems, MS Publisher.

42 - Programming in 'C'

UNIT – I Data Types, Operators and some statements: Identifiers and keywords, Constants, C Operators, Type Conversion. Writing a Program in C: Variable declaration, Statements, Simple C Programs, Simple Input Statements, Simple Output Statements, and Features of stdio.h. Control Statements: Conditional Expressions, Loop Statements, Breaking control statements.

UNIT – II Function and Program Structures: Introduction, Defining a Function, Return Statement, Types of Functions, Actual & Formal Arguments, Local & Global Variables, Multifunction Program, and The Scope of Variables, Recursive Function, and ANSI Function Slandered. Arrays: Array Notation, Array Declaration, Array Initialization, Processing with Arrays, Arrays and Functions, Multidimensional Array, Character Array.

UNIT – III Pointers: Pointer Declaration, Pointer Arithmetic, Pointers and Functions, Pointers and Arrays, Pointer and Strings, Array of Pointers, Pointers to Pointers. More on Functions: Pre-processors, Macros, Header Files, standard Functions.

UNIT-IV Structures, unions and Bit Fields: Declaration of Structure, Initializing a Structure, Functions and Structures, Array of Structure, Arrays within Structure, Structure within structure, Pointer and ?Structure, Union, Bit Fields, Typedef Enumerations. Data File Operations: Review of input/output Functions, Opening and Closing of files, Simple File Operation, Structures and File Operation, Block Read/Write, More on File operations, Low level File operations, Random Access File processing.


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43 - Practical

- A1. Draw a flowchart, write an algorithm and program in "C" to check whether the entered character is either alphabet, Digit or Special Character.
- A2. Draw a flowchart, write an algorithm and program in "C" to check whether the entered character is in either Uppercase or Lowercase and also convert that character either in Uppercase or Lowercase by using toupper(), tolower(), getchar(), putchar(), isupper() and islower() library functions.
- A3. Draw a flowchart, write an algorithm and program in "C" to generate the mark sheet of student using following information.
- Name of the student.
 - Roll Number
 - Course Name
 - Marks of 5 subjects, each subject carries 100 marks. Passing marks of each subject is 45.
 - Calculate Total Marks.
 - Calculate Percentage.
 - Display the Result, the conditions for result is –
 - Result = "Pass", if the student get 50% aggregate and must not get less than 45 marks in each subject.
 - Else Result = "Fail"
 - Display the Grade, The grade will be –
 - Grade = "Distinction", If Percentage ≥ 75 .
 - Grade = "First Class", If $60 \leq \text{Percentage} < 75$.
 - Grade = "Second Class", If $50 \leq \text{Percentage} < 60$.
 - Grade = "Fail", If Percentage < 50 .
- A4. Draw a flowchart, write an algorithm and program in "C" to generate and print Fibonacci series and check whether each number is prime or unprimed.
- A5. Draw a flowchart, write an algorithm and program in "C" to generate and print Fibonacci series and check whether each number is EVEN or ODD.
- A6. Draw a flowchart; write an algorithm and program in "C" to convert the total number of days into number of years, months and remaining days. Consider 360 days in a year and 30 days in month.
- A7. Draw a flowchart; write an algorithm and program in "C" to perform the following arithmetic operations using arithmetic operators in switch statement. The Arithmetic operations are addition (+), Subtraction (-), Multiplication (*), Integer Division (/) Real Division (/), modulo (%) and Raise to power (^).
- A8. Draw a flowchart; write an algorithm and program in "C" to check the entered character is vowel or not using switch statement.
- A9. Draw a flowchart; write an algorithm and program in "C" to convert Decimal Number to its equivalent Binary Number.
- A10. Draw a flowchart; write an algorithm and program in "C" to convert Binary Number to its equivalent Decimal Number.

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- A11. Draw a flowchart; write an algorithm and program in "C" to find LCM and HCF of two numbers.
- A12. Draw a flowchart, write an algorithm and program in "C" to Print and evaluate the following series. The series is ----
 $\text{Sum} = (x) + (x^2/2!) + (x^3/3!) + (x^4/4!) + (x^5/5!) + \dots$
- A13. Draw a flowchart, write an algorithm and program in "C" to Print and evaluate the following series. The series is ----
 $\text{Sum} = (x) + (x^3/3!) + (x^5/5!) + (x^7/7!) + (x^9/9!) + \dots$
- A14. Draw a flowchart, write an algorithm and program in "C" to enter the Nine digit number, find and print even and odd numbers from that nine digit number also find the summation of all even number and odd numbers.
- A15. Draw a flowchart, write an algorithm and program in "C" to check the entered number is Palindrome or not also print the reverse of the given number.
- A16. Draw a flowchart, write an algorithm and program in "C" to swap the values of two variables with and without using third variable.
- A17. Draw a flowchart, write an algorithm and program in "C" to generate and print the Prime Factors of a given number.
- A18. Draw a Flowchart; Write an Algorithm and Program in "C" to Calculate the Mean and Variance of 10 Integer Numbers.
 Where $\text{Mean} = \sum(X_i)/N$ and
 $\text{Variance} = \sum (X_i - \bar{X})^2 / N$
- A19. Draw a Flowchart; Write an Algorithm and Program in "C" to Find the Largest and smallest number form a single dimension array.
- A20. Draw a Flowchart; Write an Algorithm and Program in "C" to Search an Element from a single dimension array with its position using Sequential search Technique. Print the message "Element found at position _____", if the element present in an array and print message "Element Not Found", If element is not present in an array.
- A21. Draw a Flowchart; Write an Algorithm and Program in "C" to insert an element in a given position in an array.
- A22. Draw a Flowchart; Write an Algorithm and Program in "C" to delete an element from a given position of an array.
- A23. Draw a Flowchart; Write an Algorithm and Program in "C" to Sort elements of a given array using Bubble Sort in an ascending order.
- A24. Draw a Flowchart; Write an Algorithm and Program in "C" to find the sum of Each Row and each column of a given Matrix and also find the sum of all elements.
- A25. Draw a Flowchart; Write an Algorithm and Program in "C" to convert the matrix into Transpose of Matrix also print both the original and Transpose of Matrix.
- A26. Draw a Flowchart; Write an Algorithm and Program in "C" to add two matrices of the given range and print all the three matrices.
-

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- A27. Draw a Flowchart; Write an Algorithm and Program in "C" to find the product of two matrices of the given range and print all the three matrices.
- A28. Draw a Flowchart; Write an Algorithm and Program in "C" to check the entered String is Palindrome or not with and without using String Manipulation Functions.
- A29. Draw a Flowchart; Write an Algorithm and Program in "C" to Find the given character and replace that character with new character of the original text also print the modified text.
- A30. Draw a Flowchart; Write an Algorithm and Program in "C" to count the number of spaces, alphabets, digits, special symbols from a given text using String Manipulation Functions.
- A31. Draw a Flowchart; Write an Algorithm and Program in "C" to count the number of spaces, alphabets, digits, special symbols from a given text using ASCII Characters.
- A32. Draw a Flowchart; Write an Algorithm and Program in "C" to count the number of words and all characters excluding spaces from a given text without using string manipulation Functions.
- A33. Draw a Flowchart; Write an Algorithm and Program in "C" to concatenate two strings into third string without using string manipulation Functions.
- A34. Draw a flowchart, write an algorithm and program in "C" to Design and Print the following Output of any entered string, for example -

P	R			
P	R	1		
P	R	1	N	
P	R	1	N	T
P	R	1	N	
P	R	1		
P	R			

- A35. Draw a Flowchart; Write an Algorithm and Program in "C" to Append to string arrays in third array.
- A36. Draw a Flowchart; Write an Algorithm and Program in "C" to Sort a String array in either Ascending or Descending order.
- A37. Draw a Flowchart; Write an Algorithm and Program in "C" to Insert an element in an appropriate position in a sorted array. The array is sorted in an ascending order.
- A38. Draw a flowchart, write an algorithm and program in "C" to Design and Print the following Output.

				1					
			2	3	2				
		3	4	5	4	3			
	4	5	6	7	6	5	4		
5	6	7	8	9	8	7	6	5	

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- A39. Draw a flowchart, write an algorithm and program in "C" to Design and Print the following Output.

```

      *
    * *
  * * *
* * * *
  * * *
    * *
      *

```

- A40. Draw a flowchart, write an algorithm and program in "C" to Design and Print the following Output.

```

1
0 1
0 1 0
1 0 1 0
1 0 1 0 1
0 1 0 1 0 1

```

- A41. Write an algorithm, draw a flowchart and develop 'C' program to Create a structure Student containing fields for Roll No., Name, Class, Year and Total Marks. Create 10 students and store them in a file.
- A42. Write an algorithm, draw a flowchart and develop 'C' program to create a file "abc.txt" and store the text. Copy the content from "abc.txt" to another file "xyz.txt" using putc() and getc() function. Also read the content of both files.

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Bachelor of Commerce Computer Application (BCCA) Semester-II

44 - English and Business Communication-I

UNIT-I (A) Comprehension of an Unseen Passage (B) Punctuation, Words often confused

UNIT-II Business Correspondence: Inviting Quotations, Placing Orders, Credit Letters - Granting/Refusing Credit, Letter to Bank for overdraft facility

UNIT-III • Elements of communication • Objectives of communication • Essentials of effective communication • Barriers to effective communication • Suggestions to overcome the barriers

UNIT-IV Textbook entitled _Prism: Spoken and Written Communication, Prose & Poetry' published by Orient Black Swan Prose

- i) An Astrologer's Day – R. K. Narayan
- ii) The Gift of the Magi – O. Henry
- iii) The Bet – Anton Chekhov

45 - Principles of Business Management

UNIT- I

Nature And Functions Of Management – Importance Of Management, Definition Of Management, Management Function Or The Process Of Management, Levels Of Management, Organizational Or Business Functions, Role Of A Senior Management, Managerial Skills, Managerial Effectiveness, Management And Administration, Management- A Science Or An Art?, Management- A Profession?, Professional Management Vs Family Management, Management Of International Business. **Development Of Management Thought**- Early Classical Approaches, Neo-Classical Approaches, Modern Approaches. **Planning**- Nature Of Planning, Importance Of Planning, Types Of Plans, Steps In Planning, Strategic Planning Process, Limitation Of Planning, Making Planning Effective, Planning Skills, Strategic Planning In The Indian Industry. **Decision Making**- Meaning Of Decision, Types Of Decision, Steps In Relational Decision-Making, Rationality In Decision-Making, Environment Of Decision-Making, Common Difficulties In Decision-Making.

UNIT- II

Organization- What Is An Organization?, Process Of Organizing, Principles Of Organizing, Span Of Management, Departmentalization, Process Departmentalization, Purpose Departmentalization, Organization Structure, What Type Of Structure Is Best?, Emerging Organization Structures, Committees, Teams, International Organization Structures. **Coordination** – Distinction Between Coordination And Cooperation, Distinction Between Coordination And Control, Need For Coordination, Requisites For Excellent Coordination, Types Of Coordination, Techniques Of Coordination, Difficulties Of Coordination, Coordinating Global Operations. **Informal Organization** – Why Do Informal Group Forms?, Types Of Informal Groups, Stages Of Group Development, Distinction Between Formal And Informal Organization, Benefits Of Informal Organization To Its Members, Benefits Of Informal Organization To Its Management, Dysfunctional Effects Of Informal Organization, How To Minimize The Dysfunctional Effects Of Informal Organization?, Group Dynamics. **Staffing**- Importance And Need For Proper Staffing, Manpower Planning, Recruitment, Selection, Placement, Induction, Manpower Planning In India, Staffing From A Global Perspective.

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UNIT- III

Training And Development- Difference Between Training, Education And Development, Advantages Of Training, Steps In Setting Up A Training And Development Programme, Design And Development Of The Training Programme, Evaluation Of Training And Development, Executive Training Practices In India, Mentoring, Learning Organization, Knowledge Management. **Performance Management-** Purpose Of Appraisal, Steps In Designing Performance Management System, Criteria And Standards Of Performance Appraisal, Frequency Of Appraisal, Performance Appraisal Methods, Limitations Of Traditional Appraisal Methods, Post-Appraisal Interview, Appraisal Of Management, Performance Management In Indian Industries, Expatriate Performance Appraisal, Career Planning And Development, Appraisal Of Organizational Development. **Compensation Plans-** Classification Of Compensation, Primary Compensation, Monetary Incentive, Non-Monetary Incentive, Recognition As A Reward, Benefits, Wage Packet Of Indian Worker, International Compensation. **Direction And Supervision-** Requirements Of Effective Direction, Giving Orders, Motivation, Job Satisfaction, Organizational Commitment, Morale, First-Level Or Front- Line Supervision.

UNIT- IV

Communication- Importance Of Communication, Purpose Of Communication, Formal Communication, Forms Of Communication, Informal Communication, The Communication Process, Barriers To Communication, Principles Of Effective Communication, Communication Networks, Checks On In-Plant Communication, Communication In Indian Industries. **Leadership** – Difference Between A Leader And A Manager, Characteristics Of Leadership, Functions Of A Leader, Traditional Approaches To Leadership, Situational Factors Determining Choice Of Leadership Style, New Approaches To Leadership, Leadership Assessment, Leadership Style In Indian Organization, Worker Participation In Management In India. **Managerial Control-** Steps In A Control Process, Need For Control System, Benefits Of Control, Essentials Of Effective Control System, Problems Of The Control System, Control Techniques. **Organizational Change-** Need For Planned Change, Managing Organizational Change, Requisites For Successful Planned Change, Recent Planned Changes In The Corporate Sector In India.

46 - Programming in "C++"

UNIT – I

Introduction to Object Oriented Programming: Introduction, What is Object Oriented Programming(OOP)?, Structured Procedural programming(SPP), Object Oriented Programming OOP, Characteristics of OOPs, Advantages of OOPs, Disadvantages of OOPs, Comparison of SPP and OOP, Steps in Developing OOP Programs, Structure of Object Oriented Programs, Object Oriented Languages, Importance of C++. **Data Types, Operators and Expressions:** Identifiers & Keywords, Data Types, C++ Simple Data Types, Literals, Variables, the Const Data type, C++ Operators, Type Conversion. **Input and Output Streams:** Comments, Declaration of Variables, the Main () Function, Simple C++ Programs, Program Termination, Features of IOStream, Keyboard and Screen I/O, Manipulator Functions, Input and Output (I/O) Stream Flags. **Control Statements:** Conditional Expressions, Loop Statements, Nested Control Structures, Breaking Control Statements.

UNIT – II

Function and Program Structures: Introduction, Defining a Function, Return Statement, Types of Functions, Actual & Formal Arguments, Local & Global Variables, Default Arguments, Structure of C++ Program, Order of the Function Declaration, Manually invoked Functions, Nested Functions, Scope Rules, Side Effects, Storage Class Specifiers, Recursive Function, Pre-processors, Header Files, Standard Functions. **Arrays :** Introduction, Array Notation, Array

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Declaration, Array Initialization, Processing with Arrays, Arrays and Functions, Multidimensional Array, Character Array. **Pointers and Strings:** Introduction, Pointer Arithmetic, Pointers and Functions, Pointers to Functions, Pointers and Arrays, Array of Pointers, Pointers to Pointers, Pointer and Strings, Deciphering Complex Declarations. **Structures, Unions and Bit Fields:** Introduction, Declaration of Structure, Processing with Structures, Initialization of Structures, Functions and Structures, Array of Structure, Array within a Structure, Nested Structure, Pointer and Structure, Unions, Bit Fields, Typedef, Enumerations.

UNIT – III

Classes and Objects: Introduction, Structures and Classes, Declaration of Class, Member Functions, Defining the Object of a Class, Accessing a Member of Class, Array of Class Objects, Pointer and Classes, Union and Classes, Classes within classes(Nested Class). **Special Member Function:** Introduction, Constructors, Destructors, Inline Member Functions, Static Class Members, Friend Function, Dynamic Memory Allocations, This Pointer, Mutable. **Single and Multiple Inheritance:** Introduction, Single Inheritance, Types of Base Classes, Type of Derivation, Ambiguity in Single Inheritance, Array of Class Objects and Single Inheritance, Multiple Inheritance, Container Classes, Member Access Control.

UNIT-IV

Overloading Functions and Operators: Function Overloading, Operator Overloading, Overloading of Binary Operators, Overloading of Unary Operators. **Polymorphism and Virtual Functions:** Polymorphism, Early Binding, Polymorphism with Pointers, Virtual Functions, Late Binding, Pure Virtual Functions, Abstract Base Classes, Constructors under Inheritance, Destructors under Inheritance, Virtual Destructors, Virtual Base Classes. **Templates and Exception Handling:** Function Template, Class Template, Overloading of Function Template, Exception Handling. **Data File Operations:** Opening and Closing of Files, Stream State Member Functions, Reading/Writing a Character from a File, Binary File Operations, Classes and File Operations, Structure and File Operations, Array of Class Objects and File Operations, Nested Class and File Operations. Random Access File Processing.

47 - E-Commerce & Web Designing

UNIT – I

Introduction to Electronic Commerce

Electronic Commerce : The Scope of Electronic Commerce, Definition of Electronic Commerce, Electronic Commerce and the Trade Cycle, Electronic Markets, Electronic Data Interchange, Internet Commerce, e-Commerce in Perspective. **Business Strategy in an Electronic Age: The Value Chain, Supply Chains, Porter's Value Chain Model, Inter Organizational Value Chains. Competitive Advantage:** Competitive Strategy, Porter's Model, First Mover Advantage, Sustainable Competitive Advantage, Competitive advantage using e-Commerce. **Business Strategy:** Introduction to Business Strategy, Strategic Implication of IT, Technology, Business Environment, Business Capability, Existing Business Strategy, Strategy Formulation and Implementation Planning, e-Commerce Implementation, e-Commerce Evaluation. **Case Study: e-Commerce in Passenger Air Transport:** Choices, Airline Booking Systems, Competition and customer Loyalty, Web Booking Systems, Competitive Outcomes

UNIT – II

Business to Business Electronic Commerce

Inter Organizational Transactions: Inter Organizational Transactions, the Credit Transaction Trade Cycle, A Variety of Transaction, Pens and Things. **Electronic Markets: Markets,** Electronic Markets, Usage of Electronic Markets, Advantages and Disadvantages of Electronic

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Markets, Future of Electronic Markets. **Electronic Data Interchange (EDI):** Introduction to EDI, EDI definition, The Benefits of EDI, EDI Example. **EDI: the Nuts and Bolts :** EDI technology, EDI Standards, EDI Communications, EDI Implementation, EDI Agreements, EDI Security, Nuts, Bolts and the Tool kit. **EDI and Business :** Organizations that use EDI, EDI Trading Patterns, EDI Transactions, EDI Adoption and EDI Maturity, IOS, EDI an Internet e-Commerce. **Inter Organizational e-Commerce:** Inter Organizational Transaction, Purchasing Online, After Sales Online, e-Commerce in Desk top Facilities Management, Pens and Things and the Web.

UNIT – III

Business to Consumer Electronic Commerce

Consumer Trade Transactions: What you want, when you want it, Internet e-Commerce, The e-Shop, Internet Shopping and the Trade Cycle, Other e-Commerce Technologies, Advantages and Disadvantages of Consumer e-Commerce, Consumer e-Commerce at Pens and Things. **The Elements of e-Commerce :** Elements, e-Visibility, The e-Shop, Online Payments, Delivering the Goods, After Sales Service, Internet e-Commerce Security, A Web Site Evaluation Model. **E-Business: Introduction,** Internet Bookshops, Grocery Supplies, Software Supplies and Support. Electronic Newspapers, Internet Banking, Virtual Auctions, Online Share Dealing, Gambling on the Net, e-Diversity **Introduction to the Internet:** Computer in Business, Networking, Internet, Electronic Mail(E-Mail), Resource Sharing, Gopher, World Wide Web, Usenet, Telnet, Bulletin Board Service, Wide Area Information Service. **Internet Technologies:** Modem, Internet Addressing, Physical Connections, Telephone Lines, Internet Browsers, Internet Explorer, Netscape Navigator. **Introduction to HTML:** Designing a Home Page, History of HTML, HTML Generations, HTML Documents, Anchor Tag, Hyper Links, Sample Html Documents. **Header and Body Sections: Header** Section, Title, Prologue, Links, Colorful Web Page, Comment Lines, Some Sample Html Documents. **Designing the body Section :** Heading Printing, Aligning the Headings, Horizontal Rule, Paragraph Tab Setting, Image and Pictures, Embedding PNG Format Images.

UNIT – IV

Ordered and Unordered Lists: Lists, Unordered Lists, Headings in a List, Ordered Lists, Nested List. **Table Handling: Table,** Table Creation in HTML, Width of the Table and Cells, Cells Spanning Multiple Rows/Columns, Coloring Cells, Columns Specification, Some Sample Tables. **Dhtml and Style Sheets:** Defining Styles, Elements of Styles, Linking a Styles Sheet to an HTML Document, In-Line Styles, External Styles Sheets, Multiple Styles. **Frames:** Frameset Definition, Frame Definition, Nested Framesets. **A web Page Design Project:** Frameset Definition, Animals, Birds, Fish. **Forms: Action** Attribute, Method Attribute, Enctype Attribute, Drop Down List, Sample Forms


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48 - Practical

1. Write an algorithm, draw a flowchart and develop a C++ program to print the sum and product of digits of an Integer.
2. Write an algorithm, draw a flowchart and develop a C++ program to reverse of a number.
3. Write an algorithm, draw a flowchart and develop a C++ program to compute the sum of the first n terms of the following series - $S = 1 + 1/2 + 1/3 + 1/4 + \dots$
4. Write an algorithm, draw a flowchart and develop a C++ program to compute the sum of the first n terms of the following series - $S = 1 - 2 + 3 - 4 + 5 - \dots$
5. Write an algorithm, draw a flowchart and develop a C++ function that checks whether a given string is Palindrome or not. Use this function to find whether the string entered by user is Palindrome or not.
6. Write an algorithm, draw a flowchart and develop a C++ program to print a triangle of stars as follows (take number of lines from user):
*

7. Write an algorithm, draw a flowchart and develop a C++ program to swaps two numbers using pointers.
8. Write an algorithm, draw a flowchart and develop a C++ function to find whether a given no. is prime or not. Use the same to generate the prime numbers less than 100.
9. Write an algorithm, draw a flowchart and develop a C++ program to compute the factors of a given number.
10. Write an algorithm, draw a flowchart and develop a C++ program which takes the radius of a circle as input from the user, passes it to another function that computes the area and the circumference of the circle and displays the value of area and circumference from the main() function.
11. Write an algorithm, draw a flowchart and develop a C++ program to demonstrate the use of single inheritance.
12. Write an algorithm, draw a flowchart and develop a C++ program to find largest among two value using friend function.
13. Write an algorithm, draw a flowchart and develop a C++ program in which a function is passed address of two variables and then alter its contents.
14. Write an algorithm, draw a flowchart and develop a C++ program to display Fibonacci series (I) using recursion, (II) using iteration
15. Write an algorithm, draw a flowchart and develop a C++ program to calculate Factorial of a number (I) using recursion, (II) using iteration

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Practical List of E-Commerce & Web Designing

1. Write a program in HTML to link two files. The name of the first file is LINK1.HTML and that of second file is LINK2.HTML. LINK2.HTML should contain a Back link also.
2. Write a program in HTML to design a table containing 5 columns and 4 rows. The name of the columns should be ENO, NAME, DESIGNATION, SALARY and CITY. Illustrate the usage of cell padding and cell spacing. Also align the Table to the CENTRE of the page.
3. Write a program in HTML to design a Table containing 5 columns and 4 rows. The name of the columns should be ENO, NAME, DESIGNATION, SALARY and CITY. The table should also contain the below given specifications.
 - a. Table should contain BORDER.
 - b. Background color of the Table should be GREEN.
 - c. Color of the Text should be BLUE.
 - d. Text should be centrally aligned in the cell.

4. Write a program in HTML to illustrate the usage of ROWSPAN in the below given format.

CITY	TOWN
NAGPUR	SHANKAR NAGAR
	DHARAMPETH
	RAMDASPETH
BOMBAY	DADAR
	V.T.
	THANE

5. Write a program in HTML to illustrate the usage of COLUMN SPAN (COLSPAN) in the below given format.

NAME	LIVING CITY	COMPANY CITY
SUJEET	CHHINDWARA	
TAPAN	NAGPUR	BOMBAY
RAM	BOMBAY	
MOHAN	BANGALORE	
KRISHNA	PUNE	
MANGESH	BOMBAY	NAGPUR
AVINASH	DELHI	

6. Write a program in HTML to divide the Screen into 4 sections.
7. Write a program in HTML to divide the screen horizontally into two sections.
8. Write a program in HTML to demonstrate the usage of Marquee text with the below given Specifications.
 - a. Marquee text is INTERNATIONAL COLLEGE.
 - b. Color of text is BLUE.
 - c. Background color is YELLOW.
 - d. Size of Text is 7.
 - e. Direction is LEFT to RIGHT.

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9. Write a program in HTML to demonstrate the usage of Image file with the below given specification.

1. Background color of page is GREEN.
2. The size of Image is 400 x 400 pixels.
3. The Image should contain a border.
4. Alternate text is "IMAGE NOT FOUND".
5. Image should appear on the centre of the page.

10. Write a program in HTML to demonstrate the usage of Image file with the below given specifications.

1. Background color is RED.
2. The size of Image is 300 x 300 pixels.
3. The image should contain a BORDER.
4. Alternate Text is "IMAGE is NOT FOUND".
5. Vertical space should be 100 pixels.
6. Horizontal space should be 350 pixels.

11. Write a program in HTML to illustrate Ordered & Unordered Listing in the below given format.

1. NAGPUR
 - SHANKAR NAGAR
 - DHARAMPETH
 - SADAR
 - RAMDASPETH
2. BOMBAY
 - DADAR
 - V.T.
 - THANE
3. BANGALORE
 - ULSOOR
 - SHIVAJI NAGAR
 - MAJESTIC
 - HAL
 - NAL

1. Write HTML code to display the following :

Industry Segment	Share of Industry RND	
	1981	1988
Information	32%	42%
Drug	07	09
Combined	39	51

12. Write a program in HTML to illustrate the below given formats.

1. The page should contain a paragraph which is centrally aligned.
2. FIRST line of the paragraph should be BOLD and ITALIC.
3. STRIKEOUT the Second Line.
4. Underline and change the color to RED, of the third line.
5. Change the font size of the fourth Line to 5.
6. Change the color of the text to GREEN.
7. Two horizontal lines below the paragraph.

13. Write a program in HTML to design a table containing 5 columns and 4 rows. The name of the columns should be ENO, NAME, DESIGNATION, SALARY and CITY.

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14. Write a program in HTML to design a Table containing 5 columns and 4 rows. The name of the columns should be ENO, NAME, DESIGNATION, SALARY and CITY. The table should also contain the below given specifications.
- Table should contain BORDER.
 - Background color of the Table should be GREEN.
 - Color of the Text should be BLUE.
 - Text should be centrally aligned in the cell.
15. Write a program in HTML to divide the screen horizontally into two sections.
16. Write a program in HTML to demonstrate the use of the Marquee Text with the below given Specifications.
- Marquee Text is INTERNATIONAL COLLEGE.
 - Text color is BLUE.
 - Repeat the Marquee Text five Times.
 - Make use of SCROLLAMOUNT.
 - Make use of SCROLLDELAY.
17. a) Give the advantages of style sheets.
b) Design a web page to embed external style sheet in HTML document.
18. a) What are the different formats of video file? Explain the various methods to add video file in a web page.
b) Design a web page to show the use of audio file using different approaches and attributes of embed tag.
19. a. What is CSS? Explain different ways to associate CSS to HTML documents.
a. Design a web page to embed style sheet in HTML document through <HEAD> tag.

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Bachelor of Commerce Computer Application (BCCA) Semester-III

49 - Environmental Studies

UNIT - I

Multidisciplinary Nature of Environmental Studies- Environment, Environment Studies, Need for public Awareness, Environmental Degradation, Shelter Security, Economic Security, Social Security, Effects of Housing on Environment, Effects of Industry on Environment. **Natural Resources-** Introduction, Types of Natural Resource, Forest Resources, Water Resources, mineral Resources, Food Security Resources, Energy resources, Land Resources, Conservation of Natural Resources, Sustainable Lifestyles, Sustainable Water Management(SWM), Biogeochemical Cycle.

UNIT – II

Ecosystem- Introduction to Ecology and Ecological Succession, Ecosystem, Food Chain, Ecological Pyramids, Types of Ecosystems, Forest Ecosystems, Aquatic Ecosystems, Grassland Ecosystem, Desert Ecosystem. **Biodiversity and its Conservation-**Biodiversity, Values or Benefits of Biodiversity, Bio geographic Zones of India, Hot Spots of Biodiversity, Endangered and Endemic Species, Rare and Threatened Species, Threats to Biodiversity, Human –Wildlife Conflicts, Conservation of Biodiversity.

UNIT – III

Environmental Pollution and Its Effects- Introduction, Requirements of a Non polluted Environment, Public Health Aspects, Air Pollution, Land Pollution, Land Pollution or Soil Pollution, Marine Pollution, Noise Pollution, Thermal Pollution, Hazardous Wastes, Nuclear Hazards (Radiation Pollution),Solid Waste and Its Management, Role of Individuals in Pollution Prevention, Disaster Management.

UNIT – IV

Social Issues and the Environment- Introduction, Sustainable Development, Urbanization, Water Conservation, Resettlement and Rehabilitation of People ; Its Problems and Concerns, Social Issues and The Environment, Wasteland Reclamation, ACTs for Environmental Protection, Carbon Credits, Industrial Symbiosis, Initiatives and Roles of Nongovernmental Organization (NGOs) in Environmental Protection, Issues Involved in Enforcement of Environmental Legislation, Animal Husbandry. **Human population and the Environment-** Population Growth, Family Welfare Programs, Environment and Human Health, Fundamental Rights, Human Rights, Value Education, HIV/AIDS, Environmental Education, Women's Education, Role of Information Technology in Environment and Human Health.

50 - Business Economics

UNIT – I

Introduction: Economics And Business Economics - Introduction, What Is Economics, Definitions, Nature And Scope Of Business Economics, Some Economics Concepts Applied In Business Analysis. **The Economy, Its Basic Problems And Price Mechanism :-** Introduction, What Is An Economy?, How A Free Enterprise Economy Works, Kinds Of Economic Systems, Production Possibilities Of An Economy, Basic Problems Of An Economy, How Market Mechanism Solves The Basic Problems, All Is Not Well With Free Enterprise Economies, Role Of The Government In The Economy. **Laws Of Demand And Supply And Market Equilibrium :-** Introduction, The Concept Of Market, Demand Side Of The Market, Supply Side Of Market, Market Equilibrium, Stability Of Market Equilibrium.

Theory of Consumer Demand: Analysis Of Individual Demand - Introduction, Meaning Of Individual Demand, Utility- The Basis Of Consumer Demand, Cardinal Approach To Consumer

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Demand, Ordinal Utility Approach To Consumer Demand –The Indifference Curve Approach, Comparison Of Cardinal And Ordinal Utility Approaches, Revealed Preference Theory, Consumer Surplus. **Elasticity Of Demand** :- Introduction, Meaning Of Demand Elasticity, Price Elasticity Of Demand, Cross-Elasticity Of Demand, Income-Elasticity Of Demand, Advertisement Elasticity Of Demand, Price Expectation-Elasticity Of Demand, Some Estimates Of Demand Elasticity. **Demand Forecasting** :-Introduction, Meaning And Purpose Of Demand Forecasting, Prerequisites Of Good Demand Forecasting, Methods Of Forecasting Demand, Concluding Remarks, Some Case Studies Of Demand Forecasting.

UNIT – II

Production And Cost Analysis: Theory Of Production - Introduction, Some Basic Concepts, Production Function, Laws Of Production-Meaning And Kinds, Short-Run Laws Of Production, Long-Term Laws Of Production-I:Tools Of Analysis, Long-Term Laws Of Production-II: Laws Of Return To Scale, Laws Of Returns To Scale Through Production Function. **Theory of Cost** - Introduction, Cost Concepts, Cost Function, Short-Run Cost-Output Relations, Long-Run Cost Output Relations, Economics And Diseconomies Of Scale, Modern Theory Of Cost. **Market Structure And The Firm's Objectives** - Introduction, Market Structure And Degree Of Competition, Market Structure And Pricing Decisions, The Firm And The Industry, Profit: Meaning And Concepts, Objectives Of Business Firms, A Reasonable Profit Target: A Pragmatic Approach, Profit As Control Measure. **Price And Output Determination Under Perfect Competition** - Introduction, What Is Perfect Competition? Features Of Perfect Competition, Price Determination Under Perfect Competition, Equilibrium Of The Firm In Short-Run, Derivation Of Supply Curve, Equilibrium Of Industry And Firm In Short-Run, Equilibrium Of The Firm And Industry In Long-Run, Long-Run Supply Curve Of The Industry.

UNIT – III

Pricing Decisions Under Monopoly - Introduction, Definition And Features Of Monopoly, Sources And Kinds Of Monopolies, Revenue Curves Under Monopoly, Price And Output Determination In Short-Run, Two Common Misconceptions About Monopoly, There Is No Supply Curve In Short-Run, Monopoly Equilibrium In The Long-Run, Capacity Utilization Under Monopoly, Equilibrium Of Multiplant Monopoly, Price Discrimination Under Monopoly, Monopoly Vs. Perfect Competition, Application Of Monopoly Theory, Measures Of Monopoly Power, Government Regulation Of Monopoly Prices. **Pricing Decision Under Monopolistic Competition** - Introduction, Monopolistic Competition: Definition & Characteristics, Basic Elements Of Monopolistic Competition, Firms Equilibrium Under Monopolistic Competition, Excess Capacity Under Monopolistic Competition, Selling Cost And The Firm's Equilibrium: Non-Price Competition, Monopolistic Competition Vs Perfect Competition: A Comparison, Drawbacks Of Chamberlin's Theory Of Monopolistic Competition. **Pricing Decisions Under Oligopoly**-Introduction, Oligopoly: A Market Of Few Sellers, The Oligopoly Models: An Overview, A Classical Model Of Duopoly: Cournot's Model, Chamberlin's Model Of Oligopoly : The Small Group Model, Sweezy's Kinked-Demand Curve Model, Price And Output Determination In Collusive Oligopoly, Baumol's Theory Of Sales Maximization, Oligopoly And The Game Theory.

UNIT – IV

Factor Market: Factor Demand And Supply -Introduction, Marginal Productivity Of Factor And Factor Demand, The Factor Supply: An Overview, Derivation Of Individual Labor Supply Curve, Derivation Of Market Labor Supply Curve. **Theory Of Wage Determination** - Introduction, Wage Determination Under Perfect Competition, Wage Differentials, Wage Determination Under Product Monopoly And Competitive Labor Market. **Theory Of Rent, Quasi-Rent And Economic Rent** -Introduction, Ricardian Theory Of Rent, Quasi-Rent: The Short-Term Rent On Fixed

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Factors, Factor Price, Transfer Earning And Economic Rent. **Theory Of Interest** -Introduction, Meaning Of Interest And Interest Rate, The Classical Theories Of Interest, The Loanable Fund Theory Of Interest, Keynesian Theory Of Interest. **Theory Of Profit** -Introduction, The Meaning Of Profit And Pure Profit, Accounting Profit Vs Economic Profit, Theories Of Profit, Does Profit Enter The Cost Of Production?.

51 - Visual Basic Programming

Unit – I

Introduction to Visual Basic– Advantages Of Visual Basic, Hardware Requirement, Software Requirement, Installing Visual Basic, Starting Visual Basic, Exiting From Visual Basic. **Working With Visual Basic Window Components**– Menu Bar, Standard Toolbar, Project Explorer Window, Form Layout Window, Properties Window, Toolbox, Code Editor Window, Object Browser, Customizing The Application Development Environment, Editor Tab, Editor Format Tab, General Tab, Docking Tab, Environment Tab, Advance Tab. **Working With Forms**– Extension & With Function Of The File, Properties, Events And Method Of The Form. **Using The Controls Of Visual Basic** – Using Label Control, Using Command button Control, Using Textbox Control, Using Option Button Control, Using Frame Control, Using Checkbox Control, Using Listbox Control, Using Combo box Control, Using Image Control, Using Scroll Control, Using Picture Control, Using Timer Control, Using Drivelistbox Control, Using Dirlistbox, Using File listbox Control, Using The Shape Control. **Basic Programming Fundamentals** – Scope of Variables, Arrays, Operators, Decision Structure, Loop Structure.

Unit – II

Working With Procedure, Functions and Modules – Procedure, Functions, Modules
Accessing Files – Sequential Method, Random Method, Binary Method. **Menus** – Creating Menus, Creating Popup. **Working With Common Dialog Control** – Showopen, Showsave, Showprint, Showfont, Showcolor, Showhelp. **Control Arrays**– What Is Control Arrays?, Creating Control Arrays Using The First Method, ControlArrays Using The Second Method, Control Arrays Using The Third Method, **Use Of Load And Unload Statement**. **Working With Custom Controls** – Imagelist Control, Image combo Control, Treeview Control, Listview Control, Sorting List items, Toolbar Control, Statusbar Control.

Unit – III

Creating Mdi Applications – Features Of Child Form, Arrange in Windows, Window List
Creating an Application – Making An Exe File, Taking Printouts. **Database Handling** – Creating the Database, Accessing the Database By Using The Data Control, Using Ado Data Control. **Working With Advance Data Controls** – Datalist Control, Datacombo Control, Datagrid Controls, Setting the Properties of the Datagrid Control, Msflexgrid Control, Setting the Properties of Msflexgrid Control, Sorting A Column, Merging Cells, Description Of Merge Options, Using The Data Form Wizard, Working With Ms Chart Layout. **Working with SQL Statement** – Displaying All Fields, Displaying Selected Fields, Modifying the Data, Creating Search Program, Creating Numeric Search Programs, Creating Complex Search Program.

Unit – IV

Debugging Techniques – Syntax Errors, Logical Errors, Run-Time Error, Debug Toolbar, Assert Method, Debugging Mode, Step Into, Step Out, Run To Cursor, Set Next, Show Next, Locals Window, Immediate Window, Watch Window, Edit Watch, Deleting Watch Expression, Quick Watch, Call Stack. **Handling Errors**– How Run-Time Error Occurs?, Trapping Error, Handling Errors, Resuming Program Execution, Resume, Resume Next, Using Resume Next, Err Object,

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Properties, Methods. **Working With Data Environment and Data Report**– SQL Query Builder, Data Report, Use of Controls, Using the Function Control, Using the Page Footer. **Working With Com Components** – What Is COM?, Introduction, ActiveX Controls, Using The ActiveX Control, Creating The ActiveX Control, Using The ActiveX Control In The Standard EXE, ActiveX Documents, Benefits, Creating An ActiveX Documents, Lifetime Events Of An ActiveX Documents, Describing About Hyperlink Object, Property bag Object, Write Property, Read Property, Property Change Method, Inserting Menus, ActiveX Document Migration Wizard, ActiveX Code Components, Setting Project Properties.

52 - Database Management System

UNIT – I

Introduction: Concept of the System, Types of Decisions, Information System, Classification of information System, Conventional File Processing System, Database System, Components of Database Management System, Economic Justification of Database Approach. **Database Concepts:** Introduction, Data, Information, Metadata, Terminologies of Files, Association between Fields, Association between Files (Record Types), File Organization. **Data Structure:** Introduction, Location Methods, Types of Pointer, Inter record Data Structure.

UNIT – II

Data Models: Introduction, Classification of Data Model, Entity Relationship Model. **Database Design:** Introduction, Steps of Database Design, Normalization, Case Problem, Data Volume and Usage Analysis, Integrated Case Study-Database Design for Academic institution. **Implementation Design:** Introduction, Implementation Design, Guidelines for mapping Conceptual data model into a desired logical Data Model, Problem Design Guidelines.

UNIT – III

Structured Query Language - I: Table fundamentals, viewing data in the tables, Eliminating duplicate rows when using a select statements, sorting data in a table, creating a table from a table, inserting data into a table from another table, delete operations, updating the contents of a table, modifying the structure of tables, renaming tables, truncating tables, destroying tables, creating synonyms.

UNIT-IV

Structured Query Language - II: Data Constraints, Types of data constraints, defining different constraints on a table, computations done on table data, ORACLE functions, Date conversion functions, Data functions, Miscellaneous functions, Grouping data from tables in SQL, Subqueries, Joins, concatenating data from table columns, using the UNIONS, INTERSECT and MINUS clause.

53 - Practical

Practical List of Visual Basic Programming

B1. Draw a Flowchart. Write an Algorithm and Program to calculate the bonus for the Employee using user defined data types. If grade is A then bonus will be 1000, if B bonus 7000, if C bonus 5000, otherwise no bonus will be given. If the users have to reuse the program then all the values should be cleared and the cursor should be set to the first control. (Note - Use option button & frames)

B2. Draw a Flowchart. Write an Algorithm and Program to give options of Font size, Font color and Font face in the check boxes. Convert the text in the text box by applying the selected fonts.

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B3. Draw a Flowchart. Write an Algorithm and Program to increase & decrease the width of command button and to change the position of command button (top & left) on the form using scrollbar.

B4. Draw a Flowchart. Write an Algorithm and Program to generate a thermometer using vertical scrollbar.

B5. Draw a Flowchart. Write an Algorithm and Program to accept an employee_no, emp_name from the user. Display several cities in the list box in which your company have the branches. Allow the user to do the following.

- User should add the city if new branch opens.
- Display the selected city.
- Remove the city if the branch closed.
- Create another list box in which user can add the metropolitan cities.

Note: Multiple cities can be added from the available cities.

B6. Draw a Flowchart. Write an Algorithm and Program to find the reverse of a 4 digit number and print the sum of all the digits.

B7. Draw a Flowchart. Write an Algorithm and Program to enter a base number and an exponent number from the user. Calculate exponential value of an entered base number.

(For Example, if base = 2 and the exponent = 5 then the value will be 32)

B8. Draw the Flowchart. Write an Algorithm and Program to ask a Password while opening a project. Validate the user's password for 3 times, else do not allow the user to open the project.

B9. Draw a Flowchart. Write an Algorithm and Program to generate a stopwatch of 10 minutes using timer control.

B10. Draw a Flowchart. Write an Algorithm and Program to calculate the age of the user in year, month and days as on the current date.

B11. Draw a Flowchart. Write an Algorithm and Program to match the given pairs.

- | | |
|---------------------|------------|
| 1. Sachin Tendulkar | a. Boxing |
| 2. VishwanathAnand | b. Tennis |
| 3. Leander Pace | c. Chess |
| 4. MikeTyson | d. Cricket |

B12. Draw a Flowchart. Write an Algorithm and Program to conduct a competitive examination. The examination contains 5 questions and each question is having 4 option. Assign 10 marks for every appropriate answer & 0 for wrong. Display the total marks at the end.

B13. Draw a Flowchart. Write an Algorithm and Program to add and subtract two different matrices.

B14. Draw a Flowchart. Write an Algorithm and Program to prepare a calculator. The calculator includes following operations - addition, subtraction, multiplication, division.

B15. Draw a Flowchart. Write an Algorithm and Program to calculate the area of a triangle and the area of circle.

Area of Triangle = $\frac{1}{2} \times \text{Base} \times \text{Height}$

Area of Circle = $\text{Pi} \times \text{Radius} \times \text{Radius}$

B16. Draw a Flowchart. Write an Algorithm and Program to enter the temperature in degree & convert it into Fahrenheit and vice versa.

Celsius = $(F - 32) \times (5 / 9)$

Fahrenheit = $(C + 32) \times (9 / 5)$

B17. Draw a Flowchart. Write an Algorithm and Program to calculate the average of five numbers using focus event.

B18. Draw a Flowchart. Write an Algorithm and Program to input text from the user & change it to Upper case and Lower case using option buttons.

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B19. Draw a Flowchart. Write an Algorithm and Program to generate an Electricity Bill. Input customer number, customer name, current reading, last reading and area from the user. Area should be any one from the following -

- I. Household II. Industrial III. Non Household
IV. Urban V. Rural VI. Agriculture
VII. Poultry Farm

Rates for Household : 1 to 30 - Rs.1 31 to 100 - Rs. 2.55 101 to 300 - Rs.2.95 301 and above - Rs. 4.55	Rates for Industrial : 1 to 1000 - Rs.2.40 1001 to 15000 - Rs. 3 15001 and above - Rs. 3.40
Rates for Non Household : 1 to 100 - Rs.2.50 201 and above - Rs. 5	Rates for Urban : For all - Rs. 2.25
Rates for Rural : For all - Rs. 1.40	Rates for Agriculture : For all - Rs. 1.90

B20. Draw a Flowchart. Write an Algorithm and Program to input ASCII values from the user & classify them into Small letters, Capital letters, Numeric value & special characters.

B21. Draw a Flowchart; write an Algorithm and Program to generate a Telephone Bill. Input customer number, customer name, telephone number, current reading, last reading, the month of billing and area as Urban OR Rural from the user. Calculate the bill as follows -

- Call rates for Urban area :-
Free Calls - 150
151 to 400 - 0.80 Rs.
401 to 1000 - Rs. 1
1001 and above - Rs. 1.20
Call rates for Rural area:-
Free Calls - 250
251 to 450 - 0.60 Rs.
451 to 500 - Rs. 0.80
501 to 1000 - Rs. 1
1001 and above - Rs. 1.20

B22. Draw a Flowchart. write an Algorithm and Program to sort a Numeric Array using Linear Sort method.

B23. Draw a Flowchart. Write an Algorithm and Program to sort a String Array using Bubble Sort.

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Practical List of Database Management System

1. Write a SQL Query to create a table "employee":

Field Name	Datatype	Size
Emp_no	varchar2	5
Emp_name	varchar2	25
Address	varchar2	50
Phone_number	number	10
Designation	varchar2	15
Salary	number	15

1. Display the structure of table.
2. Add qualification field at the end of employee table.
3. Modify the size of the name field 25 to 30.
4. Display the employee name whose salary is greater than 20,000.
5. Display the employee details whose name starts with "A".

2. Write a SQL Query to create a table "student":

Field Name	Datatype	Size	Constraint
Roll	number	5	
Name	varchar2	30	
Address	varchar2	30	
City	varchar2	30	
DOB	date		
Phone	number	11	
Class	varchar2	10	
Marks	number	(10, 2)	

1. Display the structure of database and insert 10 records.
2. Display student information for all student in city Pune and Nagpur.
3. Display student information where marks greater than 80 and less than 90.
4. Display student name where first two character of student name 'An'.
5. Change student name to Ashish where student roll number A001.

3. Write a SQL Query to create a table "sales_details":

Field Name	Datatype	Size
S_id	varchar2	8
P_id	varchar2	8
P_name	varchar2	15
Price	number	10
Qty	number	8

1. Drop foreign key constraint on column p_no in table sales_details.
2. Add foreign key constraint on column sale_no in table sales_details.
3. Modify the column qty to include not null constraint.
4. Insert 10 records in sale_details.
5. Display p_id and total of quantity qty for each product.
6. Display p_id and total of price for all the products.

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4. Write a SQL Query to create a table "customer":

FieldName	Datatype	Size
Cust_no	varchar2	10
Cust_name	usertype	
Address	varchar2	10
Salary	number	10

1. Modify address field with not null.
2. Add city field as it must keep city name Mumbai, Delhi and Kolkata.
3. Add salary field where salary greater than 20,000.
4. Display the structure of table customer.
5. Insert 10 records into the table customer.
6. Display all the customer details who lives in Mumbai and Kolkata.
7. Display all the customer records whose salary>20,000 and salary<30,000.
8. Modify the address field where customer number is 'C001'.

5. Write a SQL query to create c_master with fieldsc_no, name, address, city, state and pin_code:

Field Name	Datatype	Size
C_no	varchar2	10
Name	varchar2	10
Address	varchar2	10
State	varchar2	20
City	varchar2	20
Pin_code	number	10

1. Create sequence which will generate number from 1..999 in ascending order, with an interval of 1 and in cyclic order.
2. Insert 10 records.
3. Create index on c_master which column name c_no and state.
4. Create view on c_master .
5. Select columns c_no, city which belongs to Nagpur and Mumbai.

6. Write a SQL query to create a syntax seq_order which generating numbers from 1...9999 in ascending will number with an interval of 1 in cyclic order.

Field Name	Datatype	Size
P_no	varchar2	10
P_name	varchar2	20
Qty	varchar2	10
P_rate	varchar2	10

1. Display next value of sequence seq_order.
2. Display current value of sequence seq_order.
3. Insert values in sal_order table must be generated using sal_order sequence.
4. Display all records of sal_order table.
5. Change a cache memory of 50 seq_order sequence having interval 2.
6. Drop sequence.

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7. Write a SQL Query to-

1. Create an index employee_index depends on employee table using field name.
2. Create a view depends on employee table.
3. Display the records from the view where city as Delhi and Mumbai.
4. Update the view where employee id is 'E006'.

8. Write a SQL query to illustrate numeric function.

- | | | | | |
|---------|---------|----------|-------------|-----------|
| 1. Sqrt | 2. Ceil | 3. Power | 4. Floor | 5. Round |
| 6. Mod | 7. Abs | 8. Exp | 9. Greatest | 10. Least |

9. Write a SQL query to create table space data user or data where size of file 100MB extend it by 10MB reach upto 250MB in size. Create user data1 with default tablespace and temporary tablespace. Create role acc_create with create session, create user, alter user and assign role to user. Assign profile to user where user should fail after 5 attempt and valid for 3 days. Destroy user data1 and tablespace from system.

10. Write a SQL query for join, inner join, outer join, self join and Cartesian join.


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Bachelor of Commerce Computer Application (BCCA) Semester-IV

54 - Mathematics

UNIT – I

Introduction Scope, Data Collection and Classification: Meaning of Statistics, Variable and Attribute, Primary Data and Secondary Data, Population (or Universe) and Sample, Complete Enumeration (or Census) and Sample Survey, Statistical Enquiry, Useful Terms Classification, Tabulation, Mechanical Tabulation. **Permutation:** Introduction, Fundamental Rules of Counting, Result on Permutation Examples. **Combination:** Introduction, Result of Combination. **Set Theory:** Method of Set Representation and Notation, Types of Sets, Venn Diagram, Set Operations, Union (Set Addition), Intersection (Set Multiplication), Complement, Difference, Examples on Set Operations, Laws of Algebra of Sets, Duality, Verification of Laws (Using Venn Diagram), Proof of the Laws of Set Algebra, Number of Elements in a set

UNIT – II

Logarithm: Introduction, Definition of Logarithm, Laws of Logarithm, Common Logarithm and Natural Logarithm, Antilogarithm. **Compound Interest:** Interest Compounded Continuously, Amount at the Changing rates of Interest, Nominal and Effective rate of Interest, Growth and Depreciation. **Other Useful Mathematics Devices:** Rounding of Numbers, Absolute, Relative and Percentage Errors, Significant Figures, Some Short Processes of Calculation, Roots and Reciprocals Expressed as Power, A.P. Series and G.P. Series, Sum and Sum of the Squares of Numbers, Inequalities, Concept of Function, Polynomial, Sigma (Σ) Notation, Simple Interpolation

UNIT – III

Charts and Diagrams: Objects of Diagrammatic Representation, Types of Charts and Diagrams. **Frequency Distribution:** Observation, Frequency, Simple Series (or Ungrouped Data) and Frequency Distribution, Useful Terms Associated with Grouped Frequency Distributions, Construction of frequency Distribution, Cumulative Frequency Distribution, Relative Frequency Distribution, Diagrammatic Representation of Frequency Distributions, Frequency Curve. **Measures of Central Tendency:** Average or Measure of Central Tendency, Arithmetic Mean (A.M.), Important Properties of A.M., Simplified Calculation for A.M., Mean of Composite Group, Geometric Mean (G.M.), Properties of G.M., Harmonic Mean (H.M.), Advantages and Disadvantages of A.M., G.M., H.M., Relations between A.M., G.M., H.M., Median, Calculation of Median, Advantage and Disadvantage of Median, Mode, Calculation of Mode, Advantages and Disadvantages of Mode, Relation between Mean, Median, Mode, Partition Values - Quartiles, Deciles, Percentiles, Calculation of Partition Values. **Measures of Dispersion:** Meaning and Necessity of Measures of Dispersion, Range, Quartile Deviation (Or Semi – Interquartile Range), Mean Deviation (Or Mean Absolute Deviation), Standard Deviation (S.D.), Important Properties of S.D., Calculation of Standard Deviation (σ), S.D. of Composite Group, Relation between S.D. and Other Measures, Relative Measure of Dispersion.

UNIT- IV

Moments, Skewness and Kurtosis: Moments, Relation between central and Non-Central moments, Beta coefficients and Gamma-coefficients, Standardized Variable, Moments of Frequency Distributions, Skewness, Kurtosis. **Curve Fitting:** Curve Fitting, Straight Line and Parabola, Free-hand Method of Curve Fitting, Method of Least squares, Fitting Straight line, Simplified Calculations, Fitting Parabola, Fitting Exponential and Geometric Curves. **Correlation and Regression:** Concepts of correlation and Regression, Bivariate Data, Bivariate Frequency Distribution, Scatter Diagram, Correlation, Covariance, Correlation Coefficient (r), Properties of Correlation coefficient, Calculation

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of r, Interpretation and use of r, Variance of the Sum (Difference) of Two Series, Regression, Properties of Linear Regression, Explained Variation and Unexplained Variation, Regression Curve in Bivariate Frequency Distribution, Rank Correlation. **Time Series** : Meaning and Necessity of 'Time Series Analysis', Components of Time Series, Adjustments to Time Series Data, Secular Trend, Measurement of Trend, Monthly Trend from Annual Data, Seasonal Variation, Measurement of Seasonal Variation, Cyclical Fluctuation, Business Forecasting, Exponential Smoothing. **Probability Theory** : Introduction, Random Experiment, Outcome, Event, Important Terminology, Techniques of Counting, Classical (or 'a Priori') Definition of Probability, Theorems of Probability, Draw without Replacement, Repeated Trials-Drawing with Replacement, Bayes' Theorem Other Approaches to Probability Theory, Set and Probability, Finite Probability Space and Assignment of Probabilities, Finite Equiprobable Sample Space and Classical Definition, Conditional Probability, Independent Events.

55 - Business Law

UNIT- I

THE INDIAN CONTRACT ACT, 1872

Meaning Of Essentials Of Contract, Offer And Acceptance, Capacity Of Parties, Considerations, Free Consent, Legality Of Object And Consideration, And Agreements Opposed To Public Policy, Void Agreement And Contingent Contracts, Performance Of A Contract, Discharge Of A Contract, Remedies For Breach Of Contract, Quasi-Contracts, Indemnity And Guarantee, Bailment And Pledge, Contract Of Agency.

UNIT- II

THE SALE OF GOODS ACT, 1930:- The Sale Of Goods Act, 1930, Contract Of Sale, 'Sale' And 'Agreement To Sell' Distinguished, Meaning & Types Of Goods, Sale/Agreement To Sell, Price. **Condition And Warranties**-Meaning, Condition & Warranty Distinguished, Express And Implied Conditions And Warranties, Doctrine Of Caveat Emptor. **Transfer Of Property**-Meaning, Rules Regarding To The Transfer Of Property, Transfer Of Property In Specific Or Ascertained Goods, Transfer Of Property In Unascertained Goods And Future Goods, Rules Relating To Transfer Of Property Of Goods Sent 'On Approval' Or 'On Sale Or Return', Delivery. **Rights Of Unpaid Seller** -Meaning, Right Of Lien, Right Of Stoppage Of Goods In Transit, Lien And Stoppage In Transit Distinguished, , Effect Of Sub-Sale Or Pledge By Buyer Upon The —Two Rights Of The Unpaid Seller, Right Of Resale, Rights Of Seller And Buyers, Right Of Unpaid Sellers Against Buyer Personality, Auction Sale.

THE INFORMATION TECHNOLOGY ACT, 2000 :- Meaning, objectives, scheme, scope, provision relating to electronic signature, provision relating to electronic governance, acknowledgement and dispatch of electronic records, secure electronic records and secure electronic signature, regulation of certifying authorities, electronic signature certificates, duties of subscribers, penalties, compensation and adjudication, the cyber appellate tribunal, offences, constitution of advisory committee, power of controller to make regulations.

UNIT- III

THE INDIAN PARTNERSHIP ACT, 1932: Meaning & Essentials Of Partnership, Co-Ownership, Partnership Deed, Registration Of Firm, Types Of Partnership On The Basis Of Duration, Types Of Partners, Position Of Minor As A Partner, Mutual Rights And Duties, Relation Of Partners With Third Parties, Implied Authority Of Partners, Reconstitution Of Firms, Dissolution Of Firm, Settlement Of Accounts, Public Notice.

THE LIMITED LIABILITY PARTNERSHIP ACT, 2008 (LLP):- Meaning & Features Of LLP, Comparison Between Existing Partnership & LLP, Comparison Between Company & LLP, Minimum No. Of Partners, Designated Partners, Incorporation Document, Incorporation By Registration, Effects Of Registration, Registered Office Of LLP & Change Therein, Name Of LLP

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and change therein, partners of LLP and change therein, cessation of partnership interest, partner as agent of LLP And Not Of Other Partners, Extent Of Liability Of LLP, Extent Of Liability Of Partner, Unlimited Liability In Case Of Fraud, Whistle Blowing, Contribution. **Account, Audit And Taxation :-** Maintenance Of Books Of Account, Other Records And Audit, Etc, Annual Return, Partners Transferable Interest, **Taxation of LLP**, Conversion From Firm Into LLP, Conversion From Private Co. Into LLP, Conversion From Unlisted Public Co. Into LLP , Winding Up Of LLP, compulsory winding up, commencement of winding up by tribunal, voluntary winding up of a LLP.

UNIT- IV

The Negotiable Instruments Act, 1881 (Part-I) :- Negotiable instrument, promissory note, bill of exchange, acceptance, distinction between bill of exchange & promissory note, cheque, distinction between a cheque and bill of exchange, crossing, bouncing or dishonor cheque, holder & holder in due course, distinction between holder & holder in due course, negotiation and assignment, distinction between negotiation and assignment, endorsement, material alteration.

The Negotiable Instruments Act, 1881 (Part-II):- liabilities of various parties, proportionate in case of partial failure of consideration, presentment for acceptance, presentment for payment, acceptance for honor, payment for honor, dishonor of bill, notice of dishonor, rights of holder in case of instrument acquired after dishonor or after maturity, noting and protesting, drawee in case of need, discharge of an instrument, discharge of a parity, distinction between discharge of an instrument & discharge of a parity, hundi, types of hundies.

56 - Core Java

UNIT- I

Getting Started - The HelloWeb Applet, What is Java?, Why Learn Java, Installing and Setting Up the Java SDK, Writing Your First Application, Learning Java Syntax Basics, Writing Your First Applet! **Variables, Data Types, and Simple I/O** – The Project: the Name Game Application, Variables and Data Types, Working with Numbers, Getting Simple User Input, Strings and String Operations, Getting Back to the Name Game. **The Fortune Teller:** Random Numbers, Conditionals, and Arrays – The Project: the Fortune Teller, Generating Random Numbers, Controlling the Random Numbers Range, The If Statement, The if-else Statement, Using the Switch Statement, Understanding the Arrays, Back to the Fortune Teller.

UNIT- II

Using Loops and Exception Handling – The Project: The Number Guesser, Counting Forward with Loops, Skipping Values, Counting Backwards, Nested For Loops, Looping on Arrays, Using the while loop, Exception Handling, Back to the Numbers Guesser Program. **Blackjack: Object-Oriented Programming** – The Project: The BlackJack Application, Understanding Object-Oriented Concept, Examining Member Variables, Defining and Using Methods, Understanding Access Modifiers, The Card and CardDeck Class, Extending a Class, Back to the BackJack Game. **Creating a GUI Using the Abstract Windowing Toolkit** – The Project: MadLib Program, The java.awt Package, Using Frames, Using Components, Back to the MadLib Game Application.

UNIT- III

Advance GUI: Layout Managers and Events Handling – The Project: the AdvancedMadLib Application, Using Layout Managers, Handling AWT Events, Getting Back to the AdvancedMadLib Application. **Writing Applets** – The Project: QuizShow Applet, Understanding Applets, Including an Applet in a Web Page, Learning Applet Methods: init(), start(), stop(), and destroy(), Printing Status Messages, Writing Java Programs that Can Run as Applets or Applications, Using Sounds and Images, Back to the QuizShowApplet Applet.

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UNIT- IV

The Graphics Class: Drawing Shapes, Images, and Text – The Project: Memory Game, The Graphics Class, Fonts and FontMetrics, Drawing Images, Using the Color Class, Getting Back to the Memory Game. **Custom Events Handling and File I/O** – The Project: The Block Game, Building the Block Class, Creating the BlockGrid Class, Building the PlayArea Event Model, Creating the PlayArea Class, Creating the ScoreInfoPanel Class, Creating the Block Game Application. **Creating Your Own Components and Packages** – The Project: MinePatrol, Creating Lightweight Components, Preparing to create the jpr.lightweight Package, Building the MineCell Classes, Creating the Mine Field Classes, Creating the MinePatrol Application.

57 - PHP & MYSQL

UNIT- I

Getting Started With PHP- Basic HTML Syntax, Basic PHP Syntax, Using FTP, Testing Your Scripts, Sending Text To The Browser, Using The PHP Manual, Sending HTML To The Browser, Adding Comment To The Script, Basic Debugging Steps. **Variables**- What Are Variables?, Variable Syntax, Types Of Variables, Variable Values, Understanding Quotation Marks. **HTML Forms And PHP**- Creating A Simple Forms, Choosing A Form Data In PHP, Displaying Errors, Error Reporting, Manually Sending Data To A Page. **Using Numbers**- Creating The Forms, Performing Arithmetic, Formatting Numbers, Understanding Precedence, Incrementing And Decrementing A Number, Creating Random Numbers.

UNIT- II

Using Strings- Creating The HTML Forms, Concatenating Strings, Handling Newlines, HTML And PHP, Encoding And Decoding Strings, Finding Substrings, Replacing Parts Of A String. **Control Structures**- Creating The HTML Forms, The if Conditional, Validation Functions, Using Else, More Operators, Using elseif, The Switch Conditional, The For Loop. **Using Arrays**- What Is An Array, Creating An Array, Adding Items To An Array, Accessing An Array From A Form.

UNIT- III

Creating Web Applications- Creating Templates, Using External Files, Using Constants, Working With The Date And Time, Handling HTML Forms With PHP, Making Forms Sticky, Sending Email, Output Buffering, Manipulating HTTP Headers. **Cookies And Sessions**- What Are Cookies?, Creating Cookies, Reading From Cookies, Adding Parameters To Cookies, Deleting A Cookie, What Are Sessions?, Creating Session, Accessing Session Variables, Deleting Session. **Creating Functions**- Creating And Using Simple Functions, Creating And Calling Functions That Take Arguments, Setting Default Arguments Values, Creating And Using Functions That Return A Value, Understanding Variable Scope.

UNIT- IV

Files And Directories- File Permissions, Writing To Files, Locking To Files, Reading From Files, Handling File Uploads, Navigating Directories, Creating Directories, Reading Files Incrementally. **Intro To Database**- Introduction To SQL, Connecting To MYSQL, MYSQL Error Handling, Creating And Selecting A Database, Creating A Database, Inserting Data Into A Database, Securing Query Data,

Retrieving Data From A Database, Deleting Data In A Database, Updating Data In A Database. **Putting It All Together**- Getting Started, Connecting To The Database, Writing The User-Defined Function, Creating The Template, Logging In, Logging Out, Adding Quotes, Listing Quotes, Editing Quotes, Deleting Quotes, Creating The Home Page.

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58 - Practical

Practical List of Core Java

- A1. Write an algorithm, draw a flowchart and develop a Java program to accept a number from the user and print its factorial.
- A2. Write an algorithm, draw a flowchart and develop a Java program to accept three numbers from the user and print the largest number.
- A3. Write an algorithm, draw a flowchart and develop a Java program to print first 10 prime numbers.
- A4. Write an algorithm, draw a flowchart and develop a Java program to print the following designs
- | | | | |
|------|---------|-------|---------|
| * | 1 | 1 | 1 |
| ** | 1 2 | 2 2 | 2 2 |
| *** | 1 2 3 | 3 3 3 | 3 3 3 |
| **** | 1 2 3 4 | 2 2 | 4 4 4 4 |
- A5. Write an algorithm, draw a flowchart and develop a Java program to accept any 10 numbers from the user to store it in an Array and print the largest of all.
- A6. Write an algorithm, draw a flowchart and develop a Java program to multiply two matrices by accepting matrix elements from the user.
- A7. Write an algorithm, draw a flowchart and develop a Java program to accept 10 names from the user to store them in array of string and print them in Alphabetical order.
- A8. Write an algorithm, draw a flowchart and develop a Java program to demonstrate multilevel inheritance.
- A9. Write an algorithm, draw a flowchart and develop a Java program to demonstrate object references.
- A10. Write an algorithm, draw a flowchart and develop a Java program to accept any digit number from the user and print its reverse.
- A11. Write an algorithm, draw a flowchart and develop a Java program to find area of rectangle, square, cylinder using the concept of method overloading.
- A12. Write an algorithm, draw a flowchart and develop a Java program to accept a number from the user and search that number in array of numbers.
- A13. Write an algorithm, draw a flowchart and develop a Java program to demonstrate method overriding and method overloading.
- A14. Write an algorithm, draw a flowchart and develop a Java program to define a package P1 with class A having method show1() and show2(). Write another class B in package P2 to access elements of class A in it.
- A15. Write an algorithm, draw a flowchart and develop a Java program to declare abstract class student having methods getName(), showName() and define these methods in another class B and access them.
- A16. Write an algorithm, draw a flowchart and develop a Java program to demonstrate
1. public variables and methods

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- II. private variables and methods
- III. Final class and Methods
- IV. Default Variables
- V. Protected Variables and Methods

A17. Write an algorithm, draw a flowchart and develop a Java program to display the following using Applet

```
A
AP
APP
APPL
APPLE
APPLET
```

A18. Write an algorithm, draw a flowchart and develop a Java program to design user login screen using Applet and provide the facility of valid user login.

A19. Write an algorithm, draw a flowchart and develop a Java program to draw following using graphics class methods in a frame.



A20. Write an algorithm, draw a flowchart and develop a Java program to demonstrate multithreading using moving balls example in a frame.

A21. Write an algorithm, draw a flowchart and develop a Java program to demonstrate multithreading using moving strings example in a frame.

A22. Write an algorithm, draw a flowchart and develop a Java program to change color of applet window with following condition

- a. Green Color should be for exact 3 sec
- b. Red color should be for exact 1 sec

A23. Write an algorithm, draw a flowchart and develop a Java program to accept two numbers from user and perform their division. Define an array with size 10, accept index number from the user and store the value at that index of the array. The exception if occurred for division should be handled in inner try block and exception for array storage should be handled at outer try block.

A24. Write an algorithm, draw a flowchart and develop a Java program to define an user defined exception `sal_out_of_range` and write a class named `employee` with fields `Id`, `name`, `sal`, `phno` and accept details of user according to `Id` and store in the variables, If `sal` exceeds 10000, `sal_out_of_range` should be thrown and handled properly.

A25. Write an algorithm, draw a flowchart and develop a Java program to design a registration form for new user creation. It should include fields such as `First_Name`, `Last_Name`, `User_Name`, `Password`, `Confirm_Password` and `Email`. After user enters complete data and clicks on `Ok` button, a dialog box should display message of successful user creation else user creation failed message should be displayed. A validation for password and confirm password should be performed in this practical.

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- A26. Write an algorithm, draw a flowchart and develop a Java program to handle all mouse events using an example of cursor movement on a frame.
- A27. Write an algorithm, draw a flowchart and develop a Java program to demonstrate card layout manager.
- A28. Write an algorithm, draw a flowchart and develop a Java program to add a text field, a choice control and a label on a frame. User should enter some text in the text field then after hitting the enter key, entered texts should be added to choice control and label should display the number of items present in the choice control.
- A29. Write an algorithm, draw a flowchart and develop a Java program to design a menu called Text with MenuItems like Set Fore Color, Set Back Color, Set Font to the text in the TextField on the Frame.
- A30. Create a class named EmpAccDetails, add a method getEmpAccDetails to accept Account Details of Employee such as Income tax paid, grosssal, basic sal, HRA allowance. Add this class to a package EMP. Create another class called EmpDetails with method getEmpPerDetails, also access getEmpAccDetails in the same class by Importing the EMP Package.
- A31. Write an algorithm, draw a flowchart and develop a Java program to create three child Threads, all threads should print numbers from 1 to 10 but condition is that Thread 1 whenever starts printing the number should print all numbers completely without any break and then Thread 2 and 3 should print values as per the priority set by the system.
- A32. Write an algorithm, draw a flowchart and develop a Java program to accept 10 numbers from the user, store it in an Array and print them in Ascending order, also print largest and smallest number of the array.
- A33. Write an algorithm, draw a flowchart and develop a Java program to demonstrate Parameterized Applet by loading Images to the Applet Window using specific name from the Parameter.

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Practical List of PHP & My-SQL

1. Write an algorithm, draw a flowchart and Write a PHP script to print the value of variable in PHP and use print function for printing.
2. Write an algorithm, draw a flowchart and Write a PHP script to print the values of variable using echo.
3. Write an algorithm, draw a flowchart and Write a PHP script to print the following pattern using nested loop.

```

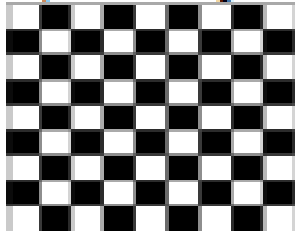
*
* *
* * *
* * * *
* * * * *

```

4. Write an algorithm, draw a flowchart and Write a PHP script to that creates the following table using for loops. Add cell padding="3px" and cell spacing="0px" to the table tag.

1 * 1 = 1	1 * 2 = 2	1 * 3 = 3	1 * 4 = 4	1 * 5 = 5
2 * 1 = 2	2 * 2 = 4	2 * 3 = 6	2 * 4 = 8	2 * 5 = 10
3 * 1 = 3	3 * 2 = 6	3 * 3 = 9	3 * 4 = 12	3 * 5 = 15
4 * 1 = 4	4 * 2 = 8	4 * 3 = 12	4 * 4 = 16	4 * 5 = 20
5 * 1 = 5	5 * 2 = 10	5 * 3 = 15	5 * 4 = 20	5 * 5 = 25
6 * 1 = 6	6 * 2 = 12	6 * 3 = 18	6 * 4 = 24	6 * 5 = 30

5. Write an algorithm, draw a flowchart and Write a PHP script using nested for loop that creates a chess board as shown below. Use table width="270px" and take 30px as cell height and width.



6. Write an algorithm, draw a flowchart and Write a PHP script to insert a new item in an array on any position.
7. Write an algorithm, draw a flowchart and Write a PHP script to sort an array of positive integers using the Sort function asort() and ksort().
8. Write an algorithm, draw a flowchart and Write a PHP script to for Creating, Retrieving and Deleting data from the cookie using POST Method.
9. Write an algorithm, draw a flowchart and Write a PHP script to convert a date from yyyy-mm-dd to dd-mm-yyyy.
Sample Date: 2012-09-12
Expected Result: 12-09-2012
10. Write an algorithm, draw a flowchart and Write a PHP script to remove the whitespaces from a string.
11. Write an algorithm, draw a flowchart and Write a PHP function that checks if a string is all lower case.

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12. Write an algorithm, draw a flowchart and Write a PHP script to check whether a entered string is palindrome or not
13. Write an algorithm, draw a flowchart and Write a PHP script to print Fibonacci series using recursion.
14. Write an algorithm, draw a flowchart and Write a PHP script using switch case and dropdown list display a - Hello|| message depending on the language selected in drop down list.
15. Write an algorithm, draw a flowchart and Write a PHP script to replace the first 'the' of the following string with 'That' –
16. Sample: 'the quick brown fox jumps over the lazy dog.'
17. Expected Result: That quick brown fox jumps over the lazy dog.
18. Write an algorithm, draw a flowchart and Write a PHP script to check that email id is valid or not.
19. Write an algorithm, draw a flowchart and Write a PHP script to create a simple 'birthday countdown' script, the script will count the number of days between current day and birth day.
20. Write a SQL statement to create simple table countries including columns country_id, country_name and region_id.
21. Write a SQL statement to create table countries including columns country_id, country_name and region_id and make sure that the column country_id will be unique and store an auto incremented value.
22. Write a SQL statement to create a table named countries including columns country_id, country_name and region_id and make sure that no countries except Italy, India and China will be entered in the table.
23. Write a SQL statement to insert a record with your own value into the table countries against each columns region_id.
24. Write a SQL statement to rename the table countries to country_new.

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B.Com. (Computer Application) Part-III

59 - Business Law

Unit I: Legal Framework for business entities- Introduction to legal aspects of Business in general; Need and importance of Business Laws. Indian Contract Act, 1872 – Definition of Contract, Agreement, Offer and Acceptance, Essentials of Valid Contract, Performance of Contract and Breach of Contract.

Unit II: Indian Joint Stock Companies Act, 1956- Definition of a Joint Stock Company, Kinds of Companies, Formation of Company, Memorandum of Association, Articles of Association, Prospectus, Company Meetings, Liquidation of a Company.

Unit III : Indian Partnership Act, 1932- Definition of Partnership, Kinds of Partners, Partnership Deed, Registration of a Partnership Firm, Rights and Duties of Partners, Liabilities of Partners, Dissolution of a Partnership Firm.

Unit IV: Information Technology Act 2000 & Cyber Law - Scope, Provisions & overview, IT Act and E-mails, Strategy to Combat Cyber Crime Consumer Protection Act, 1986- Definitions, Category of the term Consumer, Rights of Consumer, Consumer protection Councils, Remedies & Relief available to the consumer.

60 - Computerised Accounting (TALLY)

Unit – I: Introduction to Accounting, Advantages of Accounting, Books of accounts, Classification of Accounts, Financial Statements, Inventory management, Computerized Accounting, Advantages of Computerized Accounting, Manual Vs Computerized Accounting, Need of Computerized Accounting, Accounts Organization, Accounts group, Loans, Liabilities, Assets and Budget.

Unit – II: Accounting Software's, Introduction to Tally Software, Features of Tally, Tally Screen, Company Information, Creating new Company, Gateway, Selection of Company, Selection of Options, Buttons at Gateway, Working with multiple Companies, Company Features, Configuration – General, Numeric Symbols, Voucher Entry, Invoice Order Entry, Printing.

Unit – III: Accounts Info Menu, Account Groups – Create new group, creation of Primary group. Normal and Advance Information, Ledger Accounts, Cost Categories, Cost Centers. Creation of Budget, Types of Budget. Voucher – Voucher Entry, Creation of Voucher Screen, Types of Voucher, Selection of Voucher Types, Post Dated Voucher, Printing of Vouchers, Cheque Printing, advance Features of account Voucher.

Unit – IV: Inventory Info, Features of Inventory Info. Configure – Inventory Info, Balance Sheet, Audit trail, Ratio Analysis. Display – Accounting Report Display, Inventory report Display, and MIS Report Display. Printing Reports, Export of Data. Maintenance – Bank Reconciliation, House Keeping, Data Maintenance. Security – Users and Password, Security Controls, Types of Security, Creation New Security Levels and Tally Audit.

Practical: Tally Software - All Accounting Problems Viz. Balance Sheet, Profit & Loss, Cash Book, Loans, Cost Accounting, Vouchers, Budget, Sales and Purchase, Assets & Liabilities, Inventory Management, Financial Statements, Books of accounts, Ledger, etc.

61 - Software Product and Project Management

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Unit-I: PROJECT MANAGEMENT 1. The Management Spectrum, The People, The Product, The Process, The Project 2. Project Manager – Role & Responsibilities 3. Project Estimation – Introduction, Decomposition Techniques – Software sizing, Problem Based Estimation, LOC Based, FP Based estimation 4. Project Scheduling – Basic Concepts, Project Scheduling, Basic Principles, The relationship between People & effort, Effort Distribution, Defining a task network – CPM/PERT, Gantt Chart.

Unit-II: SOFTWARE TESTING STRATEGIES 1. A strategic approach to software testing – Verification & Validation, Organizing for software testing. 2. Test Strategies for conventional software – Unit Testing, Integration Testing. 3. Test Strategies for object-oriented software – Unit Testing, Integration Testing. 4. Validation Testing – Test Criteria, Configuration Review, Alpha & Beta Testing. 5. System Testing – Recovery, Security, Stress & Performance Testing. 6. The Art of Debugging – The debugging process, Psychological consideration, Debugging strategies, correcting the errors.

Unit-III: RISK MANAGEMENT 1. Introduction 2. Software Risks 3. Risk Identification – Assessing overall project risk, Risk Components & Drivers 4. Risk Projection – Developing a risk table, Assessing Risk Impact 5. Risk Refinement 6. Risk Mitigation, Monitoring and Management 7. The RMMM Plan

Unit-IV: QUALITY MANAGEMENT 1. Quality Concepts – Quality, Quality Control, Quality assurance, Cost of Quality. 2. Software Quality Assurance – Background issues, SQA Activities. 3. Formal Technical Reviews – The Review Meeting, Review reporting & record keeping, Review guideline 4. Statistical Software Quality Assurance – A generic example, Six sigma for software engineering. 5. Software Reliability – Measure of software reliability & Availability, Software safety. 6. ISO 9000 Quality Standard

62 - Front End Development

Unit –I: Introduction to Visual Basic, Event driven programming, Programming constructs - Variables, Types of Variables, Data Types, Scope of Variables, Constants, system defined functions, Operators (Precedence and Associativity), Creating User Interface, VB Controls (Label, Text box, Command button, Frame, Check box, Option button, List box, Combo box, Timer, Drive list box, Directory list box, File list box, Horizontal and vertical scroll bars, Image, Picture box, Shape, Line, Data, OLE container), Microsoft windows common controls (Tab Strip, Tool bar, Status Bar, Progress Bar, Tree View, List View, Image List, Slider, Date Picker, Month View), adding controls to a form, adding controls at run time,

Unit –II: Working with Procedure, Function and Modules (Form, Class, Standard Modules), Scope of Procedures, Calling Procedures, Calling Functions, Passing Arguments, Control Structures : If-Then, If-Then-Else, Select Case, Loops Structures : Do-While, While -Wend, For-Next, For-Each, With-End With. Arrays : Declaring an Array, Types of Array (Fixed arrays, Single-dimensional arrays, Multidimensional arrays, Dynamic arrays), Control Array. Menus : Creating Menus, Adding Menu Items, Adding Code for the Menus, Modifying menus at run time, Creating Pop-Up Menus.

Unit – III: Database Programming in Visual Basic: Use of data control, creating database using Visual data manager, validating data, data bound controls. Comparative study of Data Access Techniques: DAO, RDO, ADO, ODBC Data access object:DAO Architecture, Database connectivity through data access object. Types of recordset , setting properties and record editing & updating , searching records.

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UNIT IV :Active X data object: ADO architecture, setting data source through Active X Data objects. Use of ADO control , connecting ADODC to bound controls. Use of different data bound Controls. Editing , Updating & searching through ADO. Data Reports, Data Environment designer adding connection & commands Data report controls creating & printing reports. Error handling: Types of errors, Debugging, tools for debugging, break mode,break points, watch window, immediate window, handling runtime errors

63 - DBMS and Oracle

Unit –I: Database environment, Data processing, Traditional and DBMS environment, Database system, Types of databases - Centralize, distributed, Database management system, Components of DBMS, DBMS elements, Database Approach - Objectives, benefits, characteristics, Advantages of DBMS, The three tire architecture, Three level architecture, Database administration – Roles, Functions and responsibilities of DBA.

Unit-II: The E-R Model – Data models, Entities, attributes and relationship, Logical and Physical database design, Mapping Cardinalities, Database development process, Database development life cycle. Integrity constrains. Transforming ERR diagrams into relations, tree structure and hierarchical. Normalization, Codd's 12 rules, hierarchical database structure, Network database structure, Relational database structure.RDBMS.

Unit-III: Introduction to ORACLE as RDBMS, History& standardization of SQL, Elements of SQL : Database objects, reserved words, Keywords, Variables, Data Types, Operators. Types of SQL : DDL, DML, DCL, Create table, Alter table, Crate view, Drop table, grant, revoke, commit, delete, insert, lock table, rollback, save point, Update, Select statement, Where clause. Functions : Arithmetic & Characters comparison, Logical set, Like function, Group function, Date Functions.

Unit-IV: PL/SQL : Introduction to PL/SQL, Variables, Initialization of variables, Dynamic data types, Control loop statements, PL/SQL Cursor : Declare cursor, Fetch, Open cursor, Close cursor. Triggers :Concepts, Trigger definition, Trigger type, Enabling, Disabling & Dropping triggers.

PRACTICAL: Practical – I : Tally The Practical should be based on all the units of Computerised Accounting (Tally) Practical –II : VB & Oracle The Practical should be based on all the Units of Front End Development (VB) and Unit-III and UnitIV of DBCS & Oracle.

64 - PRACTICAL: Practical – I : Tally The Practical should be based on all the units of Computerised Accounting (Tally)

65 - Practical –II : VB & Oracle The Practical should be based on all the Units of Front End Development (VB) and Unit-III and UnitIV of DBCS & Oracle.


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Project

The Project work constitutes a major component in most of the professional programmes and it is to be carried out with due care and executed with seriousness by the students.

Types of Project

As majorities of the students are expected to work out a project in some industry/research and development laboratories/educational institutions/software companies, it is suggested that the project is to be chosen which should have some direct relevance in day-to-day activities of the candidates in his/her institution. Students are encouraged to work in the area listed at the end. The List of Applications Areas in which project must be - Financial/Marketing/Database Management System/ Relational Database Management System/E-Commerce/Internet/Manufacturing/web Designing etc.

Group Project may be allowed (Not more than THREE students in a group)

Indicative Project Report Formulation.

1. Title Page.
2. Certificate Page.
3. Declaration Page.
4. Acknowledgment Page.
5. Index or Content Page.
6. Documentation.
 - i. Introduction/Objectives.
 - ii. Preliminary System Analysis.
 - Identification of Need.
 - Preliminary Investigation.
 - Feasibility Study.
 - Need Of New System.
 - Flaws in Present System.
 - iii. Project Category.
 - iv. Software Requirement Specification.
 - v. Detailed System Analysis.
 - Data Flow Diagram.
 - Numbers of Modules and Process Logic.
 - Data Structures and Tables.
 - System Chart or Structure Chart.
 - Entity-Relationship Diagram.
 - vi. System Design.
 - Source Code.
 - Input screen & Output Screen.
 - vii. Validation Checks.
 - viii. Implementation, Evaluation and Maintenance.
 - ix. security Measures taken.
 - x. Reports.
 - xi. Future Scope of the project.
 - xii. Bibliography.

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Bachelor of Business Administration (BBA) SEMESTER-I

67 - English

Unit I: Basic Grammar – Tense, Forms of the Verb, Preposition, Articles, Punctuation, Single Word for a Group of Words, Sentence Construction, Comprehension.

Unit II: Business Letter Writing- Enquiries and replies, Placing and fulfilling orders , Complaints and follow-up letters , Sales letters, Circular letters, Application for employment and Resume.

Unit III: Business Manners- Body Language, Gestures, Telephone etiquette, E-mail etiquette.
Textbook:

- 1) The Bet – Anton Chekov
- 2) Socrates and the Schoolmaster – F. L. Brayne

Unit IV: Textbook:

- 1) An Astrologer's Day – R. K. Narayan
- 2) The Gift of the Magi – O' Henry
- 3) With the Photographer – Stephen Leacock

68 - Fundamentals of Business Management

Unit I: Introduction -Nature, function, definition and importance of management, Definition, nature, purpose and scope of management, Functions of a manager, is management a science or art? Development of Management Thought -Scientific management; Contribution of Taylor, Fayol, Mary Follet, Elton Mayo; Hawthorne experiments, Contingency approach.

Unit II: Management and Administration-Management and administration, Management as a profession, Professionalism of management in India, Management ethics and management culture, Skills required of manager, Classification of skills, Methods of skills development.

Unit III: Management Planning-Concept of planning, objectives, Nature, Types of plan, Stages involved in planning, Characteristics of a good plan, Importance, Limitations of planning, Making planning effective, Strategic planning in Indian Industry.

Unit VI: Decision Making-Concept, characteristics of decisions, Types of decisions, Steps Involved in decision making, Importance of decision making, Methods of decision making, Committee Decision Making. Organisation -Concepts, Principle of organization, Importance, Features of good organization structure, Types of Organisation structure.


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69 - Computer Applications for Business

Unit I: Introduction to Computers - Generation of Computers, Block Diagram, Working of Computer, Hardware and Software, Programming and Flow Charts concepts, Operating systems (MSDOS, Windows, UNIX, Linux), Networking concepts.

Unit II: Working with Computers - Introduction to Word, Excel, PowerPoint, Internet,. Lab Activity would be based on the following topics: a. MS Word b. MS Excel c. MS PowerPoint

Unit III: Introduction to e-Commerce, e-Learning and e-Business, M-Commerce. Introduction to Basic Web Page designing Language (HTML), using Tags: - Structural, Formatting, List tags and Table.

Unit IV: IT Consulting – Basic concepts of business, strategy and operation; Business / Strategic Consulting: Reengineering, BPR; Operations Consulting: domain knowledge concept domain consulting. IT Enabled Services (ITES) – Processes, Outsourcing Function, Call Centres; BPO's: Captive BPO's (GE and Dell) and Third Party BPO's (Infosys BPO, Wipro BOP, Mphasis, Daksh and EXL etc).

70 - Cost Accounting

Unit –I: Introduction -Meaning of Cost, Costing and Cost Accounting, Features, Scope and Functions of Cost Accounting, Advantages and Limitations of Cost Accounting; Concept of Cost; Analysis and Classification of Costs; Elements of Cost; Preparation of Cost Sheet (Statement of Cost); Quotations and tender. Introduction and need for reconciliation between financial accounts and cost account, reasons for disagreement in Profit; Preparation of Reconciliation Statement.

Unit –II: Process Costing: Meaning, features and applicability, difference between process and job costing, wastage and by-products, normal and abnormal loss. Preparation of process accounts

Unit III: Operating Costing: Classification of costs, Features of operating costing: Transport costing (Standard charge, running and operating cost, maintenance charges and log sheet)

Unit IV Marginal Costing: Introduction, Application of Marginal costing in terms of cost control, level of activity planning- Break-even-analysis: Application of BEP for various business problems.

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Bachelor of Business Administration (BBA) SEMESTER-II

71 - Principles of Marketing Management

Unit I Marketing : Definition, nature, scope & importance, Marketing Management, Core concepts of marketing, selling concept, production concept, modern marketing concept.

Unit II Segmentation: Concept, basis of segmentation, Importance in marketing; Targeting : Concept
Types, Importance; Positioning: Concept, Importance, Brand positioning, Repositioning.

Unit III Marketing Mix: Product : Product Mix, New Product development, levels of product, types of product, Product life cycle, Branding and packaging, different types of distribution channels.

Unit IV Price: Meaning, objective, factors influencing pricing, methods of pricing. Promotion : Promotional mix, tools, objectives, media selection & management. Process & Scope Marketing
Information Systems : Meaning Importance and Scope Consumer Behaviour : Concept, Importance and Factors influencing consumer behaviour.

72 - Financial & Management Accounting

Unit –I: Introduction - Meaning, Scope and importance of Financial Accounting. Financial Accounting - concepts and conventions, classification of accounts, Rules and principles governing Double Entry Bookkeeping system (Preparation of Journal), Nature and function of financial Reporting, GAAP.

Unit –II: Final Accounts of Companies - Final Accounts of Joint Stock Companies – contents and preparation of Trading and Profit and Loss Account, Profit and Loss Appropriation Account and Balance sheet with adjustment, Closing Entries (Simple entries)

Unit III: Management Accounting - Meaning, Scope, Importance, and Limitations of Management Accounting, Difference between Financial Accounting and Management Accounting, Break even analysis, Analysis of Financial Statements (using ratio analysis-simple ratios)

Unit IV: Budgetary Control - Business budgets and budgetary control – Types of budget and its utility, preparation of cash & flexible budgets.

73 - Micro-Economic Fundamentals

Unit I: Introduction to Micro Economics- Meaning, Definition, Importance of Micro Economics, Factors affecting Micro Economics. Difference between Micro-Economics & Macro Economics.

Unit-II Demand and Supply Analysis - Concept of Demand, Law of Demand-Meaning, Definition, Assumptions & Exceptions. Elasticity of Demand- Meaning, Types and Factors affecting Elasticity of

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Demand; The Indifference Curve Theory; Supply- Concept of Supply, Elasticity of Supply, Types and

Factors affecting Elasticity of Supply.

Unit III: Production & Cost Analysis - Production & Production Function: Concept, Forms of Production function, Law of Variable Proportions, Returns to scale. Cost Concepts, Short term and Long term cost output relationship, The Isocost and Isoquant Approach, Economic Region and Economies & Diseconomies of scale.

Unit IV: Market Structures- Characteristics and price determination in various market structures

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Perfect Competition, Monopoly, Monopolistic Competition, Oligopoly. Pricing: Meaning, Types of

Pricing.


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74 – English

1	Unit I	Basic Grammar & Vocabulary : • Subject-Verb-Agreement / Concord of Nouns, Pronouns and Possessive Adjectives • Spotting errors and rewriting sentences correctly. • Phrasal Verbs, Collocations and Idioms (based on the exercises at the end of the prescribed lessons from <i>Golden Harvest</i>) • Words Often Confused	Reference Books: 1. Macmillan Foundation English by R. K. Dwivedi and A. Kumar (Macmillan/Trinity) 2. Learners' English Grammar and Composition by N. D. V. Prasad Rao (S.Chand Publication) 3. Developing Communication Skills by Krishna Mohan and Meera Banerji (Trinity)
2	UNIT II	Business Communication • Memorandum Writing • Notice, Agenda and Minutes	1. Developing Communication Skills by Krishna Mohan and Meera Banerji (Trinity)
		• Writing Advertisements for: Rent, Sale, Situations Vacant	2. Write Right by Sarita Manuja (Macmillan/Trinity)
3	UNIT III	Prose Items: • A Real Good Smile: Bill Naughton • What India Inc Wants: a. Our Muddled Generation: Dinesh Kumar b. Employers Look for Potential Employees, not Exam Results: Manish Sabharwal • The Thief: Ruskin Bond	Prescribed text : <i>Golden Harvest</i> by Orient BlackSwan

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4	UNIT IV	Prose Items: • A Simple Philosophy: Seathl • Go, Kiss the World: SubrotoBagchi • My Struggle for an Education: Booker T. Washington	Prescribed text : <i>Golden Harvest</i> by Orient BlackSwan
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Bachelor of Business Administration (BBA) SEMESTER-III

75 - Principles of Financial Management

Unit –I: Introduction of Business Finance - Meaning, Scope and importance of Business Finance. Finance Functions. Goals & objectives of financial management

Unit –II: Sources of Financing - LONG TERM: Equity shares, Preference Shares, debentures,/ Bonds (Types, features & utility), term loans, lease & hire purchase, retained earnings,; SHORT TERM: trade credit, bank finance, commercial paper, factoring & bills discounting.

Unit III: Cost of Capital - Cost of capital, Cost of different sources of finance, weighted average cost of capital, Concept of Leverage, Concepts of Capital Structure.

Unit IV: Working Capital Management - Meaning, Scope, Importance, and Limitations of Working Capital, Factors affecting Working Capital needs, Various Approaches for financing Working Capital. Concept of Operating Cycle, Estimation of Working Capital Requirement.

76 - Basic Statistical Techniques

Unit I – Definition, functions, scope and role of statistics in business and importance of statistics. Classification of data, tabulation, frequency distribution, diagrams & graphs.

Unit II – Importance and requisites of a good statistical average, types of averages – arithmetic mean, median, mode, geometric mean, harmonic mean, weighted average, relationship amongst different averages.

Unit III – Meaning and significance of dispersion, methods of measuring dispersion – range, quartile deviation, mean deviation, standard deviation and coefficient of skewness.

Unit IV – Definition of correlation, significance of correlation, types of correlation, merits and limitations of coefficient, Calculation of coefficient of correlation and probable error for simple series, calculation of coefficient of correlation and probable error for continuous series.

77 - Evolution of Business & Commercial Geography

Unit I–Evolution of Business & Economy: Industrial revolution (1820-1850); Rise of European business (1850-1900); Impact of First World War on International Business; The Great Depression and its effect on International Business; Impact of Second World War on International Business.

Unit II – Evolution of Business in post WWII Scenario: Cold War and its impact on International Business; OPEC Crises and its impact on International Business; Gulf War and its impact on International Business; Dawn of IT era and its impact on business & economy.

Unit III – Commercial Geography: Geography - meaning & its relation with Commerce & Commercial Geography - Nature and scope. Approaches of commercial Geography. 2.

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Geographical Environment & Commerce - Relationship between geographical environment and Commerce, Economic activities, Determinism and possibilism, Physical environment - Location, size and shape of the country relief, climate, water bodies, soils, vegetation, animals, minerals, Cultural environment, settlements, transport, communication and technology.

Unit IV -Industries : Role of industries in Economic development; Factors of industrial location – Raw material, power, market, transport and communication, land capital, technology; Webers theory of industrial location, Iron & steel industry - India & USA, Cotton textile industry - India & USA.

Engineering industry in India - Major industrial regions of the world and India.

78 - Environment Management

Unit I: Introduction to Environment Management: Definition, Scope importance, Need for public awareness, sustainable development, Natural Resources- renewable and non- renewable resources, role of individual in conservation of natural resources(Forest, water, land, energy, mineral)

Unit II: Environment Pollution: Types of pollution- air, water, soil, noise, thermal and Nuclear, causes effects and control measures, Global warming, green house effect, Ozone layer depletion, Acid rains

Unit III: Human Population: Global population growth, variations among nations, Population explosion causes and impact, Family welfare Programs-methods of sterilization; Infectious diseases, water related diseases, risk due to chemicals in food, Cancer and environment

Unit IV: Social Issues in Environment: Construction of dams: problems and concerns of resettlement, rehabilitation of affected people; Environmental ethics– issues and possible solutions, resource consumption patterns and need for equitable utilization; Equity disparity in western and eastern countries; Urban and rural equity issues; Need for gender equity.


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Bachelor of Business Administration (BBA) SEMESTER-IV

79 - Principles of Human Resource Management

Unit 1 : Introduction to Human Resource Management: Definition, concept and Scope of H. R. M., Difference between Personnel Management and H.R.M., Importance and Functions of H.R.M. Role of H.R Department.

Unit 2 : Job Analysis, Job Design: Meaning of Job Analysis, Uses, Process and methods of collecting data for job analysis, Job Description, Job Specifications. Meaning of Job Design, Techniques of Job Design

Unit 3 : Human Resource Planning - Recruitment – Selection: Definition and objectives of Human Resource planning, process of Human Resource planning factors influencing estimation of Human Resources, Concept of Recruitment & Selection, sources of recruitment, Selection Procedure

Unit 4 : Induction & Training : Concept of Induction, Training- Need for training, benefits of training, identification of training needs and methods/ types of training. Evaluation of effectiveness of training programs.Placement, Transfer, Promotion, Demotion.

80 - Money, Banking & Finance

Unit I: Money - Concept and functions of Money, Origin and development of Money, Limitations of Barter System, Classification of Money, Importance of Money, Qualities of Good Money, Defects of money.

Unit-II – Banking and Finance - Commercial Banking- Role and functions of Commercial Banks, Credit creation and its limitations Central Banking-Functions of Central Bank. Reserve Bank of India –Role in Indian Economy, Monetary & Non-Monetary functions of RBI.

Unit III: National Income Determination- Meaning, Method & Difficulties of Measuring National Income; Concept of GDP, GNP, NNP, PI, DPI. Inflation and Deflation- Types, Causes and Measures to Control.

Unit IV: Monetary and Fiscal Policy- Concept, Objectives, Instruments, Limitations of Monetary and Fiscal policy, Public Finance- Meaning, Scope and Importance of Public Finance, Public Finance Vs Private Finance.

81 - Introduction to Sociology & Psychology

Unit I:Sociology as the Science of Society: (a) Sociology – Meaning and Definitions, (b) Characteristics of Sociology as a science (empirical, theoretical, cumulative and nonethical), (c) Development of Modern Industrial Society – Characteristics, industrialism, capitalism, urbanism,


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liberal democracy, (d) Postmodern Society – Nature and Characteristics, (e) Culture – Meaning and elements, (cognitive elements, beliefs, values and norms and signs), Meaning, stages and agencies of socialisation.

Unit II: Social Structure and Social Change: (a) Structural aspects of social system – Institutions, groups, subgroups, roles, norms and values, (b) Social change – Its sources – Internal and External, (c) Types of Social Change – Changes in social values with reference to pattern variables, changes in occupational structure and demographic changes

Unit III: Introduction to Psychology: (a) Definition, Nature, Scope and Applications of Psychology.

(b) Methods: Introspection, Observation, Experimental, Interview, Questionnaire and Case Study.

(c) Contemporary Perspectives: Biological, Cognitive, Psychoanalytical, Humanistic, Evolutionary and

Cross-cultural. (d) Biological Bases of Behaviour: Evolution, Genes and Behaviour. The Response Mechanism: Receptors, Effectors and Adjustors. (e) The Nervous System: The Basic Structure, Functions and Divisions of the Peripheral and Central Nervous System.

Unit IV: Social Psychology: (a) Introduction: Nature and Scope; Methods of Studying Social Behaviour: Observation, Experimental, Field Study, Survey, Sociometry and Cross-cultural.

(b) Socialization: Agents and Mechanisms, Socialization and Deviation. (c) Perceiving Others: Forming Impressions; Role of Nonverbal Cues, Group stereotypes, Central Traits; Primary and Recency Effects; Models of Information Integration; Attribution of Causality: Biases and Theories (Jones and Davis, Kelley).


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Bachelor of Business Administration (BBA) PART-III

83 - Entrepreneurship Development

Unit I: Entrepreneurship - Creativity and Innovation, Relationship with the Economic Development, Barriers to Entrepreneurship (Factors affecting Growth of Entrepreneurship), Theory of Achievement Motivation, McClelland's Experiments, Women Entrepreneur's.

Unit II: Entrepreneurship Trends - Strategic Management, Forms of Ownerships, Franchising, Mergers and Acquisitions, Types of Entrepreneurship.

Unit III: Business Idea - Identifying & Developing Entrepreneurial Potential, Business Ideas Generation Process, Evaluation of Business Idea.

Unit IV: Location and Layout Decisions - Location decisions for Manufacturing, Retail and Services Business, Layout and Design Considerations, Build, Buy or Lease Decisions.

Unit V: The Industry and Ancillarization Entrepreneurship & Industry, Ancillarization, Ancillarization in India, Ancillaries & Industrial Development, Ancillary Opportunities in different Economic Sectors: Agro Industries, Global Aspect of Entrepreneurship.

Unit VI: Entrepreneurial behaviour - Techno economics innovation and entrepreneurship, Sociopsychological factors influencing entrepreneurship development.

84 - Production and Operations Management

Unit I: Introduction- Nature, Scope, Importance and Functions Evolution from manufacturing to operations management - Evolution of the factory system - manufacturing systems–quality–mass customization, Contribution of Henry Ford, Deming, Crosby, Taguchi.

Unit II: Production Design- Definition, Importance, Factors affecting location & layout, Principles and Types of Facilities Layout, Layout and its objectives for manufacturing operations, warehouse operations, service operations, and office operations, principles and types of plant layouts – product layout, process layout, fixed position layout, cellular manufacturing layouts, hybrid layouts, Factors influencing layout changes.

Unit III: Production Planning and Control- Importance and Functions of Production Planning & Control. Capacity Planning : Concept and overview of aggregation demand and capacity options and strategies in production and services, capacity and value, financial impact of capacity decisions, aggregate planning types and procedure, capacity requirement planning.

Unit IV: Material Management - Materials Planning Budgeting and Material Requirement Planning; Purchase Management; Stores Management- Functions, Centralized Vs Decentralized stores, role of codification; Maintenance Management concepts – factors affecting design of material handling system,

Unit V: Material Planning and Inventory Control- Objectives, basic concepts, p-system, q-system, EOQ, maxima, minima, reorder point, buffer stocks, selective inventory classification models,


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Unit VI: Latest Concepts- Modern concepts in Production & Materials management and Japanese contribution to world class quality manufacturing like single piece flow, JIT, KANBAN, SMED, CAD, CAM, KAIZEN, POKA YOKE, Right First Time, Zero Defects.

85 - Office Management

Unit I: Office Management - Meaning, Functions and importance of office management, principles of office management, Functions and relations of office with other departments. Poor and good organization Departments -Flow of Work -Organization Charts and manual.

Unit II Office Managers: Qualifications and Qualities, authorities and responsibilities, meanings and types of secretaries, qualifications, qualities, duties of secretaries.

Unit III: Administrative arrangements and physical conditions - Centralization and Decentralization of Office services - Office Accommodation and Layout -Office Furniture - Meaning of Various terms - Basic pattern of work -Sub-division - Standardization and Standards - Work Measurement and control

Unit IV: Office equipments - Reproduction equipments - Typewriter - Duplicators - Photo Copier - Franking Machine - Communication Equipments - Dictaphone - Intercom - Telephone - Telex - Teleprinters - PABX - PBX - STD - Storage equipments - Filing Cabinets - Time Clocks - Use of Computers in Office Management

Unit V: Office System - Procedure - Routine - And methods - Paper work in office Filing functions - essentials of good filing systems - Central vs. Departmental Filing classification - Methods of filling Old and Modern - Micro filing - Indexing Types.

Unit-VI: Mail service and communication - Office Correspondence - Central vs. Departmental Correspondence - Handling Mail - Postal Services - Postbag and Post Box Numbers - Registered and Insured Posts - VPP Communications - Oral written - Internal and external communication - Records Management Types.

86 - Business Ethics

Unit I: Ethics - An introduction, Concept of ethics, Values & Ethics – Meaning & Types of Values, Ethical Action–Morals, Morality, Moral development pyramid, Beliefs, Religiousness and Law.

Unit II: Ethical Decision Making - Normative Framework –Principle of personal benefit, Principle of Social Benefit, Principle of Neutralization, Categorical Imperative, Principle of Duty, Principle of Justice and Principle of Lawfulness.

Unit III: Business Ethics - Ethics in Business – Myth & Reality, The Indian Business scene, Ethical Concerns, LPG & Global trends in business ethics, Business ethics rating in India.

Unit IV: Organizational Ethics - Organizations& Organisation culture, Types of Organization, Corporate code of ethics – Formulating, Advantages, implementation Professionalism and professional ethics code.


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Unit V: Business & Society - Business & its stakeholders, Social Responsibility – Concept of CSR, Public Policy approach & role of NGO, Environmental Ethics – concerns and issues.

Unit VI: Corporate Governance - Objectives, issues, features, Corporate Governance codes – Cadbury report, CII recommendations, Corporate Governance for public sector, Corporate Governance & Investment – ethical investing, Insider trading

87 - (Marketing Management-I)

Integrated Marketing Communication

Unit I: Marketing Communication - Introduction to Marketing Communication Concept; Elements of Marketing Communications; Unifying the Appeal and the Message across the promotion-mix components.

Unit II: Integrated Marketing Communication - Role of IMC in Marketing and Brand Management; How Marketing Communication Work; Setting IMC objectives.

Unit III: Communication and Branding - Marketing Communications Functions, Brands, and Integrated Marketing Communication, Integrated Marketing Communication Partners and Industry, Organisations; Using Advertising and Promotion to Build Brands; Brands and Stakeholder Relationships; Basic Marketing Communication Strategies for Building Brands; Integrating the Brand Communication Process; Customer Brand Decision Making.

Unit IV: Research Methods and Applications - Role and Relevance of Research in Communication; Types of Research and the Research Process; Advertising Research; Positioning Research, Target Market Research, Pre-test Research and Audience Research.

Unit V: Integrated Marketing Communication and Micro-Marketing - Segmenting, Targeting, and Positioning. Data-Driven Communication; fostering word-of-mouth; Opinion Leaders, Reference Groups

Unit VI: Creating, Sending, and Receiving Brand Messages-Integrated Marketing, Communication Creative Concept and Messages; Message Execution; Integrated Marketing Communication, Broadcast, Out-of-Home, Product Placement Media; Internet and e-Commerce Media; Integrated Marketing Communication Media Planning.

88 - (Marketing Management-II)

Retail Marketing Management

Unit I: Introduction to Retail Management - Retail & Retailing – definitions, Meaning of Retail Mix, Growth of Retail Industry, Factors responsible for changes in retailing, Challenges & Opportunities to Retail Industry.

Unit II: Store Retail Formats - Independent/ Stand alone outlet, Convenience Store, Supermarket, Discount Store, Off-price retailer, Department Store, Corporate chains, Consumer co-operatives, Shopping malls, Hypermarkets, Catalogue showroom, Franchising.

Unit III: Non-store Retail Formats - Multi-Level marketing, e-tailing, Tele-shopping, Automatic Vending Machines, Direct Mail Marketing.


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Unit IV: Retail Planning - Retail Planning Process, Retail Finance, Location Selection Decision, Layout Planning.

Unit V: Studying Consumer Behaviour & Other Related Issues in Retailing -Understanding Consumer Behaviour, Cultural & Social Group influence on Consumer Purchase Behaviour, Consumerism & Ethics in Retailing.

Unit VI: Strategic Issues in Retailing - Development of Retail Brand, Implementation of CRM, Retail Pricing, Financial Implications of Retail Strategy, Retail Supply Chain.


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Guidelines for Project Work

Objective

Every student will be assigned a project in BBA-III and it will be pursued by him/her under the supervision of an internal supervisor. The objective of the Project Course is to help the student develop his/her ability to apply multi-disciplinary concepts, tools and techniques to solve organizational problems and/or to evolve new/innovative theoretical framework.

Type of Project

The Project may take any one of the following forms:

- i) Comprehensive case study (covering single organization/multifunctional area problem, formulation, analysis and recommendations)
- ii) Inter-organisational study aimed at inter-organisational comparison/ validation of theory/survey of management services.
- iii) Evolution of any new conceptual / theoretical framework.
- iv) Field study (Empirical study).
- v) Software analysis, Design and solutions for organisational achievement (Applicable to IT)

Selection of Project Topic:

- o Project topic has to be selected with respect to the programme of study and area elected by the student.
- o Title of the project should clearly specify the objective and scope of the study. It should be specific and neither too vague nor centralistic. The topics should be designed meticulously. It can be designed like "Employee Welfare Measures" – A case study of XYZ Ltd.
- o Project selection has to be made in consultation with the supervisor who will act as a Project guide for the student.

Scope of Work

The student is expected to carry out following activities in the project:

- 1) Prepare a synopsis and get it approved by the supervisor as assigned by the respective Institutes.
- 2) Undertake a detailed literature survey on the subject matter.
- 3) Make relevant data collection/observation.
- 4) Consult experts of the field.
- 5) Visit related organizations/institutions/industries.
- 6) Compile data in proper format.
- 7) Make proper conclusion/recommendations.

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- 8) Prepare a Project Report.
- 9) The volume of the project-report should be ranging from 60-80 pages.
- 10) Obtain approval of Project Report by project supervisor
- 11) Submit two hard bound copies of the Project Report at the Institute.
- 12) Submission of the Project Report shall be one month prior to the date of the commencement of the Examinations for BBA-III

General Format of the Report

The project report should preferably be written in the following format:

- a) Executive Summary
- b) Introduction to topic
- c) Research Methodology
- d) Analysis and Findings of the study
- e) Conclusions and Recommendations of the study
- f) Bibliography
- g) Appendices - to include questionnaire, if any

Examination and Evaluation

Project is to be treated as a paper of study of the BBA-III comprising of 100 marks. The external assessment shall be done on the basis of the project report and Viva Voce.

The Project shall be evaluated by an External faculty for 100 marks and of which 50 marks will be allocated to the Written Report Content and Presentation and 50 marks for Viva Voce. **The Project work shall be evaluated by internal and external examiners approved in the list of the University for 100 marks (as mentioned above) at the respective institute / college as per the scheduled fixed by the university.**

The evaluation shall be made by the examiner on the following criteria:

For Written Report:

- | | |
|---|-----|
| • Relevance of topic and the study undertaken | 30% |
| • Theoretical depth and support | 20% |
| • Quality of work undertaken | 30% |
| • Preparation of Project Report | 20% |

For Viva Voce:

- | | |
|-------------|-----|
| • Viva-Voce | 50% |
|-------------|-----|

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Bachelor of Computer Application (BCA) SEMESTER-I

90 - English

Unit I - Prose Lessons

1. The House
2. The Boy Who Broke The Bank
3. Parveen
4. The Selfish Giant

Unit II - Poems

1. Eyes Immortal
2. Elegy Written in a Country Churchyard
3. Ulysses
4. Ecology

Unit III - Grammar

1. Tenses
2. Voice
3. Prepositions

Unit IV – Composition, Comprehension & Vocabulary

1. Letter Writing
2. Comprehension
3. Synonyms and Antonyms


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Syllabus

SS : B.S.C (IT), B.C.A. IST SEM.

Subject : MARATHI

शब्दगंध

Unit	Particulars	From	To
1	वर्तमानकालीन सामाजिक, पर्यावरण विषयावर आधारित निबंध (दोन पैकी एक)	(12)	गुण
2.	गद्य विभाग 1) शेतकऱ्यांविकषी - म. जोतीबा फुले 2) स्टीमरमध्ये - म. गांधी 3) विज्ञान शाप की वरदान - द. के. केळकर 4) ज्ञान - साने गुरुजी 5) स्वदेशावचं संशोधन - भालचंद्र नेमाडे	(15)	गुण
3.	पद्य विभाग 1) दुरितांचे तिमिर जावो - संत ज्ञानेश्वर 2) घुमवल्ली आम्हां सोथरे - संत तुकाराम 3) आम्ही कोण ? - केशवभुत 4) कशाला पंढरी जातो ? - राष्ट्रसंत लुकडोजी महाराज 5) आहे बुद्धीशी इमान - वा. शी. मर्ढेकर	(15)	गुण
4.	1) म्हणींचा अर्थ सांगून वाक्यात उपयोग करा 2) सारांश 3) कार्यालयीन पत्र 4) इंग्रजीच्या उपायाचे मराठीत भाषांतर करा 5) शुद्धलेखन	(03) (04) (04) (04) (04)	गुण गुण गुण गुण गुण

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बी.एस.सी.प्रथम वर्ष
पाठ्यक्रम हिन्दी (प्रथम सेमिस्टर)
(बी.सी.ए/ बी.एस.सी.आईटी)

समय: 03घण्टे

पूर्णांक : 60

निर्धारित पाठ्यपुस्तक

साहित्य सरीता
सम्पादक –जोगेन्द्रसिंह बिसेन
प्रकाशक–ओरियंट ब्लैकस्वीन

प्रथम इकाई : (अ) निबंध :- समसामायिक विषय
(ब) मुहावरे

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द्वितीय इकाई : गद्य (1) ईदगाह
(2) गुण्डा
(3) परदा
(4) जिंदगी और जोंक
(5) मैं हार गई

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तृतीय इकाई : पद्य (1) तोड़ती पत्थर
(2) कालीदास से
(3) कहों तो तय था चिरागों
(4) रोटी और संसद
(5) मारे जायेंगे

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चतुर्थ इकाई : पत्राचार (पत्रों के प्रकार)
(अ) (1) कार्यालयीन पत्र
(2) व्यावसायिक पत्र
(3) व्यावहारिक पत्र
(4) आवेदन पत्र
(ब) नौकरी हेतु आवेदन पत्र

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93 - Supplementary English

Unit I : Prescribed Text: Understanding India Edited by B. Keralavarma (Macmillan)

The following essays from the prescribed Text:

1. Brother Abdul Rahman – Amarlal Hingorani
2. Gandhi and the Western World - Louis Fischer
3. The Cow of the Barricades – Raja Rao
4. The Smaller Gandhis – Mohinder Singh Sarna

Unit II : The Old Man and the Sea by Ernest Hemingway (Duttons)

Unit III: Vocabulary Expansion

(Some Common Foreign Words Used in English, One Word for a Group of Words, Idioms and Phrases)

Unit IV: a) Expansion of an Idea

b) Word-formation Rules

(Noun Forms of Some Adjectives, Noun Forms of Some Verbs)

c) Precis Writing

94 - COMPUTER FUNDAMENTALS

UNIT - I :

Basic Components of Digital Computers: Block Diagram. **CPU:** Functions of Each Unit: Primary Memory, ALU and CU, Instruction format. **Bus:** Data, Control and Address Bus **Number Systems:** Binary, Octal, Decimal, HexaDecimal, Their Conversions, Binary Arithmetic. ASCII, BCD, EBCDIC.

Language Evolution : Generation of Languages : Machine, Assembly, High Level Languages. Characteristics of Good Language **Translators :** Compiler, Interpreter and Assembler. Source and Object Program.

UNIT - II :

Memory: Static & dynamic, RAM, ROM, PROM, EPROM, EEPROM, flash and Cache.

Storage Devices: Hard Disk, Zip Disk and Optical Disk. Pen Drive, Blue Ray

UNIT - III :

Input Devices: Keyboard, Mouse, Light Pen, Touch Screen, Voice Input , MICR, OCR, OMR, Barcode Reader and Flatbed Scanner.

Output Devices: VDU, Printers: Dot Matrix, Laser and Inkjet.
Plotters: Drum, Flat-Bed and Inkjet.

UNIT - IV :

Network: Network terminology, Topologies : Linear, Circular, Tree and Mesh. Types of Networks: LAN, WAN, MAN. Repeaters, Bridge, Routers, Brouters and Gateway. Modem for Communication between pc's, wi-fi network, Introduction of Bluetooth and Infrared devices. Network protocols. Architecture : Peer-to-Peer, Client/Server.

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95 - 'C' PROGRAMMING

UNIT- I :

Programming Structure : Sequence, Selection, Iteration and Modular. **Problem Solving techniques:** Development Tools: Algorithm, Flowcharts and Pseudo code (Definition and its characteristics) **Developing Algorithm and Drawing flowcharts**

UNIT- II :

C Character set, Tokens, Identifier, Keywords, Variables, Data types, Qualifiers. Operators and Expressions: Arithmetic, Relational, Logical, Bit-Wise, Increment, Decrement, Conditional and Special operators. typedef, Type Conversion, Constants, Declaring Symbolic Constants, Character Strings, Enumerated Data Types, Operator Precedence and Associativity. Library functions. : Maths, string handling Functions. Control Structure: Compound Statement, Selection Statement: if, if-else, Nested if, switch. Iteration statement: for, while, do..while, Nested loops, Jump statement: break, continue, goto. (Special emphasis on problem solving)

UNIT- III :

Arrays: Need, Types: Single and Two Dimensional Array.

Strings: Strings Manipulation, Arrays of Strings, Evaluation order

Function: Function Components, Return Data type, Parameter Passing, Return by Reference, Default Arguments, Recursive Functions, Arrays with Functions, Storage Classes. (Special emphasis on problem Solving)

UNIT- IV:

Structure: Declaration, Definition, Accessing structure members, Initialization, Nesting of Structures.

Union: Unions, Differences between Structure and Union

Pointer: Introduction, Address Operator (&), Pointer variables, Void pointers, Pointer Arithmetic, Pointers to Pointers.

File handling: Hierarchy of File Stream Classes, Opening & closing a file, Testing for errors, File Modes, File pointers and their manipulations, Sequential Access, Random Access, Command Line arguments.

96 - STATISTICAL METHODS

UNIT- I:

Introduction - Definition of Statistics, Importance and scope of Statistics, Limitations of statistics, Distrust of Statistics. Statistical Data Collection - Primary and Secondary data, Methods of Collecting Primary data, Sources and Secondary Data, Census and Sample Investigation. Presentation of statistical Data - Classification, Tabulation, Frequency Distribution, Diagrams and Graphs. Frequency Distributions

UNIT- II :

Measures of Central Tendency - Frequency Distribution, Continuous Frequency Distribution, Graphic Representation of a Frequency Distribution Average or Measures of Central Tendency or Measures of Locations, Requisites for an ideal Measure of Central Tendency Arithmetic: Mean Median, Mode, Geometric Mean and Harmonic Mean, Weighted Average, Relationship amongst different Averages.

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UNIT- III:

Measures of Dispersion, Skewness and Kurtosis - Meaning and Significance of Dispersion, Methods of Measuring Dispersion - Range, Quartile, Mean Deviation, Standard Deviation, Coefficient of Skewness, Kurtosis, Coefficient of Dispersion, Coefficient of Variation.

UNIT- IV:

Correlation and Regression - Definition of Correlation, . Scatter Diagram, Karl Pearson Coefficient of Correlation, Limits for Correlation Coefficient, Definition of Regression, Lines of Regression, Regression Curves, Regression coefficients, properties of Regression coefficients, Correlation Analysis vs. Regression Analysis.

97 - DISCRETE MATHEMATICS – I

UNIT- I:

Propositional Calculus:

Connectives, Negation, conjunction, Disjunction, statement formulas and truth tables, conditional and Bi-conditional, well formed formulas, Tautologies, Equivalence of formulas, duality law, Tautologies implications, Functionally complete set of, other connectives,

UNIT- II:

Disjunctive normal forms, connective normal forms, Principal disjunctive normal form, Principal conjunctive normal form.

UNIT- III:

Predicate Calculus:

The theory of Inference for statement Calculus, validity using truth tables, Rules of inference, consistency of premises and indirect method of Proof

UNIT- IV:

The statement function, variables and quantifier, Predicate formulas, Free and Bound variables, The universe of Discourse, Theory of inference for predicate calculus.

98 - OPERATING SYSTEMS

UNIT - I:

Structure of Operating System, Operating System functions, Characteristics of Modern OS.

Process Management: Process states, Creation, Termination, Operations on Process, Concurrent process, Processes Threads, Multithreading, Micro Kernels

CPU Scheduling: Schedulers, Scheduling Methodology, CPU Scheduling Algorithm: FCFS, SJF, RR, Priority Scheduling.

UNIT – II:

Performance comparison : Deterministic Modeling , Queuing analysis, Simulators.

Deadlock and Starvation: Resource Allocation Graph, Conditions for Dead Lock, Dead Lock Prevention, Dead Lock Detection, Recovery from Deadlock.

UNIT - III:

Memory Management: Logical Vs. Physical Address Space, Swapping, Memory Management Requirement, Dynamic Loading and Dynamic Linking, Memory Allocation Method: Single

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Partition allocation, Multiple Partitions, Compaction, paging, segmentation, Segmentation with paging. Protection.

UNIT - IV:

I/O Management: I/O hardware, I/O Buffering, Disk I/O, Raid, Disk Cache. **File Management:** File

Management system, File Accessing Methods, File Directories, File Allocation Methods, File Space Management, Disk Space Management, Record blocking. **Protection Mechanisms:** Cryptography, Digital Signature, User Authentication.

99 - OFFICE AUTOMATION

UNIT – I

Introduction to windows Operating System

Advantages of windows operating system, using different windows applications simultaneously, operating with windows, GUI, use of help features, starting an application, essential accessories, creating shortcuts, windows explorer, control panel, my computer, my documents, recycle bin, finding folders and files, changing system settings, system tools, use of run command, setting peripherals, drivers, editing graphics in windows, new features in windows XP/Vista versions.

UNIT - 2

Introduction, basics, starting Word, creating document, parts of Word window, mouse and keyboard operations, designing a document; Formatting- selection, cut, copy, paste; Toolbars, operating on text; Printing, saving, opening, closing of document; Creating a template; Tables, borders, pictures, text box operations; Mail Merge.

UNIT - 3

Introduction to MS EXCEL, navigating, Excel toolbars and operations, Formatting; copying data between worksheets; entering formula, chart creation; data forms, data sort; Functions in Excel ROUND(), SQRT(), MAX(), MIN(), AVERAGE(), COUNT(), SUMIF(), SUMIF(), ABS(), ROMAN(), UPPER(), LOWER(), CELL(), TODAY(), NOW().

UNIT – 4

Introduction to MS POWER POINT Working with Power Point Window, Standard Tool Bar, Formatting tool bar, Drawing tool Bar, Moving the Frame, Inserting Clip Art, Picture, Slide, Text Styling, Send to back, Entering data to graph, Organization Chart, Table, Design template, Master Slide, Animation Setting, Saving and Presentation , auto Content Wizard.

100 - Practical-I Practical-I Based on Paper I &II

101 - Practical-II Practical-II Based on Paper III &IV

102 - Practical-III Practical-III Based on Paper V &VI


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Bachelor of Computer Application (BCA) SEMESTER-II

103 - English

Unit I - Prose Lessons

1. Maintaining Democracy
2. The Verger
3. Two Gentlemen of Verona
4. Freedom at Midnight

Unit II - Poems

1. Where the Mind is without Fear
2. My Last Duchess
3. Up Hill
4. The Village Schoolmaster

Unit III - Grammar

1. Subject-Verb Agreement
2. Transformation of Sentences
(Interchange of Degrees of Comparison, Affirmative and Negative Sentences, Interrogative and Assertive Sentences, Exclamatory and Assertive Sentences)
3. Exercises on Common Errors

Unit IV – Comprehension & Composition

1. Comprehension
2. Curriculum Vitae
3. Make sentences of your own from the words given.


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Syllabus

Subject : Marathi

Class : B.S.C (IT), B.C.A - II

Unit	Particulars	From	To
1	निबंध (200 शब्दात) ① विज्ञानावर आधारित ② कल्पकतेवर - 11 -	(12)	
2.	गद्य विभाग ⑥ सत्य कुणीही शोधू शकते - ब्याम मनोहर (15) ⑦ ज्ञानदेवे रचिला पाया - सदानंद मोरे ⑧ विवेकवादी आणि विज्ञाननिष्ठ : संत तुकाराम - किशोर शानप ⑨ स्त्री-पुरुष स्वातंत्र्याची गोष्ट - अरुणा सबाने ⑩ गाव तिथं शाळा - रमेश इंगळे - उन्नादकर		
3.	पद्य विभाग ⑥ आणि पृथ्वीला हसू येते - सुधाकर गायधमी ⑦ शब्द - श. गो. चवरे (15) ⑧ एकविसाव्या शतकाच्या उंबरठ्यावर ⑨ गाव जुन्या शेणा-मातीचे - जयशम खेडेकर ⑩ जन्म-मरणाच्या वेण - संजीवनी लडेगावकर		
4.	① वाक्प्रचाराचा अर्थ सांगून वाक्यात उपयोग करा. (3) ② शुद्धलेखन (3) ③ सारांश (4) ④ पत्र (4) ⑤ माहितीचा अधिकार (4) = (18)		

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BSc | Bca निर्धारित पाठ्यपुस्तक : II Sem

साहित्य सरीता
सम्पादक – जोगेन्द्रसिंह बिसेन
प्रकाशक – ओरियंट ब्लैकस्वॉन

प्रथम इकाई : (अ) निबंध :- 1) विज्ञान 2) कल्पनाशील विषय (ब) लोकोक्ति	12 03
द्वितीय इकाई : गद्य (1) ढाई आखर प्रेम का (2) वापसी (3) इमाम साहब (4) सलाम (5) छप्पन तोले का करघन	15
तृतीय इकाई : पद्य (1) जागो फिर एक बार (2) यह तुम थी (3) हो गई है पीर पर्वत सी (4) बीस साल बाद (5) प्रजापति	15
चतुर्थ इकाई : 1) पारिभाषिक शब्दावलीका अर्थ हिन्दी से अंग्रेजी पारिभाषिक शब्द अंग्रेजी से हिन्दी पारिभाषिक शब्द 2) शब्दों का शुद्धीकरण	15

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106 - Supplementary English

Unit I : Text prescribed : Understanding India Edited by B.Keralavarma (Macmillan)

The following essays from the prescribed Text:

1. The Idea of India : India's Mosaic of Multiplicities – Shashi Tharoor
2. Roots – Ismat Chughtai
3. A Gandhian in Garhwal – Ramchandra Guha
4. The End of Living and the Beginning of Survival – Chief Seattle

Unit II : *The Mayor of Casterbridge* by Thomas Hardy (Macmillan, Stories to Remember)

Unit III : a) Writing Advertisements (For sale of vehicle(s)/property, For Rent, Situation Vacant, Situation Wanted)

b) Newspaper Reports (about accident, fire, functions/events)

c) Precis Writing

Recommended Books: 1. Write Right by Sarita Manuja (Macmillan)

2. Macmillan Foundation English by R.K.Dwivedi A.Kumar (Macmillan)

Unit IV : a) Essay Writing (Essays on current topics in about 300 words)

b) Word-formation Rules

(Adjective Forms of Some Nouns, Some Words Changed into Verbs)

107 - PROGRAMMING IN 'C++'

UNIT - I :

Object Oriented Methodology:

Elements of Object Oriented programming, Objects, Classes, OOPs features.

Classes & Objects: Specifying a Class, Creating Objects, Accessing Class members, Defining member function, Outside Member Functions as inline, Accessing Member Functions within the class, Static data member, Access Specifiers: Private, Protected and Public Members.

UNIT - II :

CONSTRUCTORS & DESTRUCTORS: Introduction, Parameterized Constructors, Constructor Overloading, Constructors with Default Arguments, Copy Constructor, Destructor, Order of Construction and Destruction, Static data members with Constructor and Destructors.

OPERATOR OVERLOADING: Definition, Overloadable Operators, Unary Operator Overloading, Unary & Binary overloading, Rules for Operators Overloading.

UNIT - III :

DYNAMIC OBJECTS: Pointers to Objects, Creating and Deleting Dynamic Objects: New and Delete operators, Array of Objects, Array of Pointers to Objects, Pointers to Object Members, this Pointer.

INHERITANCE: Defining, Abstract classes, Single, Multilevel, Multiple, Hierarchical, Hybrid Inheritance, Constructor and Destructor in Derived Classes.

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UNIT - IV :

VIRTUAL FUNCTIONS: Need for Virtual Functions, definition, Pure Virtual Functions, Abstract Classes, Rules for Virtual Functions.

EXCEPTION HANDLING: Exception Handling Model, List of Exceptions, Handling Uncaught Exceptions, Fault Tolerant Design Techniques, Memory Allocation Failure Exception, Rules for Handling Exception Successfully.

108 - SYSTEM ANALYSIS AND DESIGN

UNIT - I :

Introduction : System, Subsystems, Components of Computerized Information System, Systems Analysts, SDLC, Prototyping.

Feasibility Study and Analysis: Identifying Problems, Organizing Feasibility Analysis: Economic, Financial, Organizational and Technological. Feasibility Decision, Choice of a solution.

Data Collection: Interviews, Brain Storming, Questionnaires, Document Search, Observation.

UNIT - II :

Structured tools and techniques of Data analysis : Structured English, Process Charts, SOP, Decision Tables and Decision Trees, Data Flow Diagram, Data Dictionary.

(Special emphasis on problem solving)

System Design : Input design: Input Validation, Human factor Consideration, Messages, System Tolerance. Output design: Categories of output, Design Principles, Control of Output. Forms:

Principles of Form Design, Ways to ensure Quality Forms.

Codes: Types, Physical Representation of Codes, Principle of Code Design.

UNIT - III :

Implementation: Training, Operational Training and Related Activities, Planning to Implement Change, Change Strategies.

Testing: Preparation for Testing, Test Execution: Levels of Testing, Component, Function, Subsystem, System, Test Evaluation, Acceptance.

Conversion: Cold Turkey, Parallel, Pilot, Modular and Sequential Methods. Conversion Period Length. **System Evaluation.**

UNIT - IV :

Project Planning, Metrics for Project Size Estimation, Project Estimation Techniques, **Scheduling:** Work Breakdown Structure, Activity Networks and CPM, Gantt Charts, PERT Charts, Project Monitoring and Control. Risk Management, Software Configuration Management: Necessity, Configuring Management Activities

Software Reliability and Quality Management: Software Reliability, Software Quality, ISO 9000. Software Maintenance: Characteristics of Software Maintenance, Maintenance Process Models, Estimation of Maintenance Cost.

Software Reuse: What can be reused, Why no reuse so far, Basic Issues.

109 - NUMERICAL METHODS

UNIT - I :

Roots of Non-Linear Equations : Algebraic equation, Polynomial equation, Transcendental equation, Iterative method, Starting & Stopping Iterative method, Bisection Method, False Position


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method, Newton Raphson Method: Secant Method, Determining all possible roots, Multiple roots of polynomial, Complex Roots using Muller's Method.

UNIT - II :

Solution to Linear Equations Existence of solution, Gauss Elimination Method, Gauss elimination with pivoting, Gauss Jordan Method, Round off errors and refinement, m Conditioned system, Matrix inversion method.

UNIT - III :

Linear interpolation, Lagrange Interpolation, Spline Interpolation, Interpolation with equidistant points, Least Square regression Fitting, Transcendental equations, Multiple linear regression, m conditioning in Least square

UNIT - IV :

Integration & Differentiation : Trapezoidal Rule, Simpson 1/3 Rule, Simpson 3/8 rule, Gaussian Integration, Solution to differential equation (using Runge-Kutta second and fourth order methods, Multistep method for differential equations (Milne-Simpson method, Adams-bashforth-

110 - DISCRETE MATHEMATICS – 2

UNIT - I :

Set Theory:

Set, Subsets operations on set, Venn diagram, algebra on sets, Cartesian product of sets, Binary relations, Properties of binary relation, Relation matrix and the graph of relation, Partial order relations, Equivalence relations, Equivalence Classes, Composition of relations.

UNIT - II :

Functions - definition, types of function, Invertible functions composition of functions.

Counting - Permutation, Combinations, The pigeonhole principle, recurrence relation, Mathematical Induction.

UNIT - III :

Algebraic Structures Semi groups & groups: Binary operations, Semi groups, isomorphism and Homomorphism, Product and Quotient of semi groups, Groups, subgroups, products and Quotient of groups.

Lattices: - Lattice concepts, isomorphic Lattices, Properties of lattices, Finite Boolean algebras.

UNIT - IV :

Graph Theory: Basic concepts, types of graphs, Representation of graph in memory, Euler path and circuits, Hamiltonian Path and circuits.

Trees:- Basic concepts, Libeled trees, Undirected trees.

111 - LINUX OPERATING SYSTEM

UNIT - I :

Logging In and Logging Out, Anatomy of Linux OS, Directory Structure, /usr Directory, File Types: User datafiles, System data files, Executable files. Naming files and directories, Spawning Processes. **Shell:** Creating User Account, Shell Program, bash shell, Changing shell prompt.

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Commands: Basic Syntax for a command, Exploring the Home Directory, ls, mkdir, rmdir, stat, cat, rm, mv, cp

UNIT - II :

Editor: Vi editor. **Hooking up Hardware Devices:** Formatting a Floppy Disk, Gathering important system information. Backing Up and restoring the File **System:** Simple Backup, gzip, gunzip, tar. **Printing files:** Print Spool directory, Sending files to Printer.

UNIT - III :

Sharing Files with other Users: Maintaining User Accounts, Changing Password, Creating Group Accounts, Granting Access to files, Changing File Ownership, Protecting Files, Making a File Read-Only. Working with Processes: Types of processes, ps Command, Creating process, killing process, free command and top utility.

UNIT - IV :

Managing Disk Space: df, du commands, Creating Additional Free Disk Space, Locating Unused Files, Setting System Clock. Communication Utilities: who, who am i, finger, mesg, write, wall, talk, Creating a message of the day. X Window System, Graphical User Interfaces: KDE and GNOME Desktop Environment.

112 - E COMMERCE

UNIT - I :

Introduction to e-Commerce, Scope of electronic commerce, definition, e-Commerce and Trade Cycle, e- Markets, Internet e-Commerce in perspective. Value chain, Supply chain, Porters value chain model, Inter organizational value chains.

UNIT - II :

Business strategy in electronic age: Competitive advantages, Strategy, Porters model, First Movers advantages, Advantages using e-Commerce. Introduction to business strategy, Strategic implications of IT, Technology, Business environment, Business capability, Existing business strategy, Strategy formulation and implementation planning, e-Commerce implementation, e-Commerce evaluation.

UNIT - III :

Business to Business e-Commerce: Inter organizational transactions, The credit transaction trade cycle, A variety of transaction, Pens and things, Electronics Market, Usage of e-Market, Advantages and disadvantages of e-Market, Future of e-Market, EDI, introduction, EDI and Business.

UNIT - IV :

Business to Consumer Electronic Commerce: Consumer trade transaction, Internet e-Commerce, e-Shop, Other e-Commerce technologies, Advantages and disadvantages of consumer e-Commerce. Elements of e-Commerce: elements, e-Visibility, e-Shop, Online payments, Internet e-Commerce security.

113 - Practical-I Practical-I Based on Paper I &II

114 - Practical-II Practical-II Based on Paper III &IV

115 - Practical-III Practical-III Based on Paper V &VI

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Bachelor of Science (B.Sc. (IT)) Semester-I

116 - English

Unit I - Prose Lessons

1. The House
2. The Boy Who Broke The Bank
3. Parveen
4. The Selfish Giant

Unit II - Poems

1. Eyes Immortal
2. Elegy Written in a Country Churchyard
3. Ulysses
4. Ecology

Unit III - Grammar

1. Tenses
2. Voice
3. Prepositions

Unit IV – Composition, Comprehension & Vocabulary

1. Letter Writing
2. Comprehension
3. Synonyms and Antonyms


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Syllabus

SS : B.S.C (IT), B.C.A. IST SEM.

Subject : MARATHI

शब्दगंध

Unit	Particulars	From	To
1	वर्तमानकालीन सामाजिक, पर्यावरण विषयावर आधारित निबंध (दोन पैकी एक)	(12)	गुण
2.	गद्य विभाग 1) शेतकऱ्यांविकषी - म. जोतीबा फुले 2) स्टीमरमध्ये - म. गांधी 3) विज्ञान शाप की वरदान - द. के. केळकर 4) ज्ञान - साने गुरुजी 5) स्वदेशावचं संशोधन - भालचंद्र नेमाडे	(15)	गुण
3.	पद्य विभाग 1) दुरितांचे लिमिर् जावो - संत ज्ञानेश्वर 2) वृक्षवल्ली आम्हां सोथरे - संत तुकाराम 3) आम्ही कोण ? - केशवभूत 4) कशाला पंढरी जातो ? - राधेसंत लुकडोजी महाराज 5) आहे बुद्धीशी इमान - वा. शी. मर्ढेकर	(15)	गुण
4.	1) म्हणींचा अर्थ सांगून वाक्यात उपयोग करा 2) सारांश 3) कार्यालयीन पत्र 4) इंग्रजीच्या उताऱ्याचे मराठीत भाषांतर करा 5) शुद्धलेखन	(03) (04) (04) (04) (04)	गुण गुण गुण गुण गुण

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बी.एस.सी.प्रथम वर्ष
पाठ्यक्रम हिन्दी (प्रथम सेमिस्टर)
(बी.सी.ए/ बी.एस.सी.आईटी)

समय: 03घण्टे

पूर्णांक : 60

निर्धारित पाठ्यपुस्तक

साहित्य सरीता
सम्पादक -जोगेन्द्रसिंह बिसेन
प्रकाशक-ओरियंट ब्लैकस्वीन

प्रथम इकाई : (अ) निबंध :- समसामायिक विषय
(ब) मुहावरे

15

द्वितीय इकाई : गद्य (1) ईदगाह
(2) गुण्डा
(3) परदा
(4) जिंदगी और जॉक
(5) मैं हार गई

15

तृतीय इकाई : पद्य (1) तोड़ती पत्थर
(2) कालीदास से
(3) कहों तो तय था चिरागों
(4) रोटी और संसद
(5) मारे जायेंगे

15

चतुर्थ इकाई : पत्राचार (पत्रों के प्रकार)
(अ) (1) कार्यालयीन पत्र
(2) व्यावसायिक पत्र
(3) व्यावहारिक पत्र
(4) आवेदन पत्र
(ब) नौकरी हेतु आवेदन पत्र

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119 - Supplementary English

Unit I : Prescribed Text: Understanding India Edited by B. Keralavarma (Macmillan)

The following essays from the prescribed Text:

1. Brother Abdul Rahman – Amarlal Hingorani
2. Gandhi and the Western World - Louis Fischer
3. The Cow of the Barricades – Raja Rao
4. The Smaller Gandhis – Mohinder Singh Sarna

Unit II : The Old Man and the Sea by Ernest Hemingway (Duttons)

Unit III: Vocabulary Expansion

(Some Common Foreign Words Used in English, One Word for a Group of Words, Idioms and Phrases)

Unit IV: a) Expansion of an Idea

b) Word-formation Rules

(Noun Forms of Some Adjectives, Noun Forms of Some Verbs)

c) Precis Writing

120 - Fundamentals of Information Technology

UNIT - I : Basic Components of Digital Computers: Block Diagram. CPU: Functions of Each Unit: Primary Memory, ALU and CU, Instruction format. Bus: Data, Control and Address Bus Number Systems: Binary, Octal, Decimal, HexaDecimal, Their Conversions, Binary Arithmetic. ASCII, BCD, EBCDIC. Language Evolution : Generation of Languages : Machine, Assembly, High Level Languages. Characteristics of Good Language Translators : Compiler, Interpreter and Assembler. Source and Object Program.

UNIT - II : Memory: Static & dynamic, RAM, ROM, PROM, EPROM, EEPROM, flash and Cache. Storage Devices: Hard Disk, Zip Disk and Optical Disk. Pen Drive, Blue Ray

UNIT - III : Input Devices: Keyboard, Mouse, Light Pen, Touch Screen, Voice Input , MICR, OCR, OMR, Barcode Reader and Flatbed Scanner. Output Devices: VDU, Printers: Dot Matrix, Laser and Inkjet. Plotters: Drum, Flat-Bed and Inkjet.

UNIT - IV : Network: Network terminology, Topologies : Linear, Circular, Tree and Mesh. Types of Networks: LAN, WAN, MAN. Repeaters, Bridge, Routers, Brouters and Gateway. Modem for Communication between pc's, wi-fi network, Introduction of Bluetooth and Infrared devices. Network protocols. Architecture : Peer-to-Peer, Client/Server.

121 - Programming Methodology in C

UNIT- I : Programming Structure : Sequence, Selection, Iteration and Modular. Problem Solving techniques: Development Tools: Algorithm, Flowcharts and Pseudo code (Definition and its characteristics) Developing Algorithm and Drawing flowcharts

UNIT- II : C Character set, Tokens, Identifier, Keywords, Variables, Data types, Qualifiers. Operators and Expressions: Arithmetic, Relational, Logical, Bit-Wise, Increment, Decrement,

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Conditional and Special operators. typedef, Type Conversion, Constants, Declaring Symbolic Constants, Character Strings, Enumerated Data Types, Operator Precedence and Associativity. Library functions. : Maths, string handling Functions. Control Structure: Compound Statement, Selection Statement: if, if-else, Nested if, switch. Iteration statement: for, while, do..while, Nested loops, Jump statement: break, continue, goto. (Special emphasis on problem solving)

UNIT- III : Arrays: Need, Types: Single and Two Dimensional Array. Strings: Strings Manipulation, Arrays of Strings, Evaluation order Function: Function Components, Return Data type, Parameter Passing, Return by Reference, Default Arguments, Recursive Functions, Arrays with Functions, Storage Classes. (Special emphasis on problem Solving)

UNIT- IV: Structure: Declaration, Definition, Accessing structure members, Initialization, Nesting of Structures. Union: Unions, Differences between Structure and Union Pointer: Introduction, Address Operator (&), Pointer variables, Void pointers, Pointer Arithmetic, Pointers to Pointers. File handling: Hierarchy of File Stream Classes, Opening & closing a file, Testing for errors, File Modes, File pointers and their manipulations, Sequential Access, Random Access, Command Line arguments.

122 - System Analysis and Design

UNIT - I : Introduction : System, Subsystems, Components of Computerized Information System, Systems Analysts, SDLC, Prototyping. Feasibility Study and Analysis: Identifying Problems, Organizing Feasibility Analysis: Economic, Financial, Organizational and Technological. Feasibility Decision, Choice of a solution. Data Collection: Interviews, Brain Storming, Questionnaires, Document Search, Observation.

UNIT - II : Structured tools and techniques of Data analysis : Structured English, Process Charts, SOP, Decision Tables and Decision Trees, Data Flow Diagram, Data Dictionary. (Special emphasis on problem solving) System Design : Input design: Input Validation, Human factor Consideration, Messages, System Tolerance. Output design: Categories of output, Design Principles, Control of Output. Forms: Principles of Form Design, Ways to ensure Quality Forms. Codes: Types, Physical Representation of Codes, Principle of Code Design.

UNIT - III : Implementation: Training, Operational Training and Related Activities, Planning to Implement Change, Change Strategies. Testing: Preparation for Testing, Test Execution: Levels of Testing, Component, Function, Subsystem, System, Test Evaluation, Acceptance. Conversion: Cold Turkey, Parallel, Pilot, Modular and Sequential Methods. Conversion Period Length. System Evaluation.

UNIT - IV : Project Planning, Metrics for Project Size Estimation, Project Estimation Techniques, Scheduling: Work Breakdown Structure, Activity Networks and CPM, Gantt Charts, PERT Charts, Project Monitoring and Control. Risk Management, Software Configuration Management: Necessity, Configuring Management Activities Software Reliability and Quality Management: Software Reliability, Software Quality, ISO 9000. Software Maintenance: Characteristics of Software Maintenance, Maintenance Process Models, Estimation of Maintenance Cost. Software Reuse: What can be reused, Why no reuse so far, Basic Issues.


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123 - Web Technologies

UNIT I Introduction to Internet, Requirement for connecting to internet, Basic internet term, Introduction to World Wide Web (WWW), Evaluation of world wide web, basic features of www, web browsers, web server. Internet Security: Secure Transaction, Privacy issues, computer crimes and its type. Security Issues: Security threats like damage to data, loss of data and unauthorized use of data. Security Procedure: Firewall, Encryption, Password, Access Control List, Digital Certificate.

UNIT – II

Introduction to HTML, Features of HTML , Advantage and Disadvantage of HTML, Basic structure of HTML documents. Creating web pages with HTML Tags : <HTML>, <HEAD>, <TITLE>, <BODY>, Heading tags, Paragraph tags, Alignment, Font tag and its attributes, line break, Preformatted text tag, list element (Unordered lists, ordered list, Definition list, Marquee tags and its attribute. Character formatting tags: Logical versus physical style, logical and physical tags. Changing the colors of the fonts. Linking : Relative pathnames versus absolute pathnames, URLs, Linking within a web page, linking to a different web page, linking to external web page, linking to an image by image, linking to document located in different directory, types of URLs .

UNIT – III

Images: IMG element and its attributes, Images as a Hyperlink, Image map, Image Formats, Frames. Tables: TABLE element and its attributes, Creating simple tables, Row element, Data element, Spanning rows and columns. Form designs: Form Controls, Text controls, password fields, radio buttons, checkboxes, reset and submit buttons, select element, option , Image and textarea. Embedding Multimedia: Introduction, Embedding Multimedia, Inserting sound/audio formats, video file formats. DHTML: using DHTML in internet explorer, heading and horizontal line, hidden message, the message at the center of the page, moving boxes , changeable box.

UNIT – IV

Cascading Style Sheets (CSS): advantage of CSS, Disadvantage of CSS, Defining a Style, Inline style sheet, Embedded Style sheet, External style sheets. Style sheet Properties: Font, color, background, creating group, text, Box properties, span tag. Scripting Language: JAVA SCRIPT – Introduction, Advantages, Disadvantages, Working of JavaScript, Structure of JavaScript program, Variable, Data types, Operators & Expression, Decision Making- if—else, switch, loops(for, for...in, while, do...while), break & continue, , Arrays

124 - Multimedia Application Development

Unit I Fundamental concepts in Text and Image: Multimedia and hypermedia, world wide web, overview of multimedia software tools. Graphics and image data representation graphics/image data types, file formats, Color in image and video: color science, color models in images, color models in video.

Unit II Fundamental concepts in video and digital audio: Types of video signals, analog video, digital video, digitization of sound, MIDI, quantization and transmission of audio.

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Unit III Action Script I: ActionScript Features, Object-Oriented ActionScript, Datatypes and Type Checking, Classes, Authoring an ActionScript Class. Action Script II: Inheritance, Authoring an ActionScript 2.0 Subclass, Interfaces, Packages, Exceptions.

Unit IV Application Development: Application Frame work, Using Components with ActionScript MovieClip Subclasses. Multimedia data compression: Lossless compression algorithm: Run-Length Coding, Variable Length Coding, Dictionary Based Coding, Arithmetic Coding, Lossless Image Compression, Lossy compression algorithm: Quantization, Transform Coding, WaveletBased Coding, Embedded Zerotree of Wavelet Coefficients Set Partitioning in Hierarchical Trees (SPIHT).

125 - Applied Mathematics-I

UNIT- I: Propositional Calculus: Connectives, Negation, conjunction, Disjunction, statement formulas and truth tables, conditional and Bi-conditional, well formed formulas, Tautologies, Equivalence of formulas, duality law, Tautologies implications, Functionally complete set of, other connectives,

UNIT- II: Disjunctive normal forms, connective normal forms, Principal disjunctive normal form, Principal conjunctive normal form.

UNIT- III: Predicate Calculus: The theory of Inference for statement Calculus, validity using truth tables, Rules of inference, consistency of premises and indirect method of Proof

UNIT- IV: The statement function, variables and quantifier, Predicate formulas, Free and Bound variables, The universe of Discourse, Theory of inference for predicate calculus.

126 - Practical-I Practical-I Based on Paper I &II

127 - Practical-II Practical-II Based on Paper III &IV

128 - Practical-III Practical-III Based on Paper V &VI


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Bachelor of Science (B.Sc. (IT)) Semester-II

129 - English

Unit I - Prose Lessons

1. Maintaining Democracy
2. The Verger
3. Two Gentlemen of Verona
4. Freedom at Midnight

Unit II - Poems

1. Where the Mind is without Fear
2. My Last Duchess
3. Up Hill
4. The Village Schoolmaster

Unit III - Grammar

1. Subject-Verb Agreement
2. Transformation of Sentences
(Interchange of Degrees of Comparison, Affirmative and Negative Sentences, Interrogative and Assertive Sentences, Exclamatory and Assertive Sentences)
3. Exercises on Common Errors

Unit IV – Comprehension & Composition

1. Comprehension
2. Curriculum Vitae
3. Make sentences of your own from the words given.


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IIND IVTH semSyllabus

Subject : Marathi

Class : B.Sc (IT), B.A - II

Unit	Particulars	From	To
1	निबंध (200 शब्दात) ① विज्ञानावर आधारित ② कल्पकतेवर - 11 -	12	
2	गद्य विभाग ⑥ सत्य कुठलीही शोषू शकते - श्याम मनोहर ⑦ ज्ञानदेव रचिला पाया - सदानंद मोरे ⑧ विवेकवादी आणि विद्वाननिष्ठ : संत तुकाराम - किशोर सानप ⑨ स्त्री-पुरुष स्वातंत्र्याची गोष्ट - अरुणा सवने ⑩ गाव तिथं शाळा - रमेश इंगळे - उन्नादकर	15	
3	पद्य विभाग ⑥ आणि पृथ्वीला हसू येते - सुधाकर गायधनी ⑦ शब्द - श. गो. चवरे ⑧ एकविसाव्या शतकाच्या उंबरठ्यावर ⑨ गाव जुन्या शेणा - मातीचे - जयशम खेडेकर ⑩ जन्म-मरणाच्या वेणा - संजीवनी लडेगावकर	15	
4	① वाक्प्रचाराचा अर्थ सांगून वाक्यात उपयोग करा. ③ ② शुद्धलेखन ③ ③ सारांश ④ ④ पत्र ④ ⑤ माहितीचा अधिकार ④ = 18		

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BSc | Bca निर्धारित पाठ्यपुस्तक : II Sem

साहित्य सरीता
सम्पादक - जोगेन्द्रसिंह बिसेन
प्रकाशक - ओरियंट ब्लैकस्वॉन

प्रथम इकाई : (अ) निबंध :- 1) विज्ञान 2) कल्पनाशील विषय (ब) लोकोक्ति	12 03
द्वितीय इकाई : गद्य (1) ढाई आखर प्रेम का (2) वापसी (3) इमाम साहब (4) सलाम (5) छप्पन तोले का करघन	15
तृतीय इकाई : पद्य (1) जागो फिर एक बार (2) यह तुम थी (3) हो गई है पीर पर्वत सी (4) बीस साल बाद (5) प्रजापति	15
चतुर्थ इकाई : 1) पारिभाषिक शब्दावलीका अर्थ हिन्दी से अंग्रेजी पारिभाषिक शब्द अंग्रेजी से हिन्दी पारिभाषिक शब्द 2) शब्दों का शुद्धीकरण	15

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132 - Supplementary English

Unit I : Text prescribed : Understanding India Edited by B.Keralavarma (Macmillan)

The following essays from the prescribed Text:

1. The Idea of India : India's Mosaic of Multiplicities – Shashi Tharoor
2. Roots – Ismat Chughtai
3. A Gandhian in Garhwal – Ramchandra Guha
4. The End of Living and the Beginning of Survival – Chief Seattle

Unit II : *The Mayor of Casterbridge* by Thomas Hardy (Macmillan, Stories to Remember)

Unit III : a) Writing Advertisements (For sale of vehicle(s)/property, For Rent, Situation Vacant, Situation Wanted)

b) Newspaper Reports (about accident, fire, functions/events)

c) Precis Writing

Recommended Books: 1. Write Right by Sarita Manuja (Macmillan)

2. Macmillan Foundation English by R.K.Dwivedi A.Kumar (Macmillan)

Unit IV : a) Essay Writing (Essays on current topics in about 300 words)

b) Word-formation Rules

(Adjective Forms of Some Nouns, Some Words Changed into Verbs)

133 - Fundamentals of Digital Electronics

Unit – I Data and Information: Features of Digital Systems, Number Systems: Decimal, Binary, Octal, Hexadecimal & their inter conversions, Representation of Data: Signed Magnitude, one's complement & two's complement, Binary Arithmetic, Fixed point representation and Floating point representation of numbers. Codes: BCD, XS-3, Gray code, hamming code, alphanumeric codes (ASCII, EBCDIC, UNICODE), Error detecting and error correcting codes.

Unit- II Boolean Algebra: Basic gates (AND, OR, NOT gates), Universal gates (NAND and NOR gates), other gates (XOR, XNOR gates). Boolean identities, De Morgan Laws. Karnaugh maps: SOP and POS forms, Quine McClusky method.

Unit –III Combinational Circuits: Half adder, full adder, code converters, combinational circuit design, Multiplexers and demultiplexers, encoders, decoders, Combinational design using mux and demux. Sequential Circuit Design: Flip flops (RS, Clocked RS, D, JK, JK Master Slave, T, Counters, Shift registers and their types, Counters: Synchronous and Asynchronous counters.

Unit- IV Computers: Basic Organization, Memory: ROM, RAM, PROM, EPROM, EEPROM, Secondary Memory: Hard Disk & optical Disk, Cache Memory, I/O devices

134 - Object Oriented Programming Using 'C++'

UNIT - I : Object Oriented Methodology: Elements of Object Oriented programming, Objects, Classes, OOPs features. Classes & Objects: Specifying a Class, Creating Objects, Accessing Class members,


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Defining member function, Outside Member Functions as inline, Accessing Member Functions within the class, Static data member, Access Specifiers: Private, Protected and Public Members.

UNIT - II : CONSTRUCTORS & DESTRUCTORS: Introduction, Parameterized Constructors, Constructor Overloading, Constructors with Default Arguments, Copy Constructor, Destructor, Order of Construction and Destruction, Static data members with Constructor and Destructors. OPERATOR OVERLOADING: Definition, Overloadable Operators, Unary Operator Overloading, Unary & Binary overloading, Rules for Operators Overloading.

UNIT - III : DYNAMIC OBJECTS: Pointers to Objects, Creating and Deleting Dynamic Objects: New and Delete operators, Array of Objects, Array of Pointers to Objects, Pointers to Object Members, this Pointer. INHERITANCE: Defining, Abstract classes, Single, Multilevel, Multiple, Hierarchical, Hybrid Inheritance, Constructor and Destructor in Derived Classes.

UNIT - IV : VIRTUAL FUNCTIONS: Need for Virtual Functions, definition, Pure Virtual Functions, Abstract Classes, Rules for Virtual Functions. EXCEPTION HANDLING: Exception Handling Model, List of Exceptions, Handling Uncaught Exceptions, Fault Tolerant Design Techniques, Memory Allocation Failure Exception, Rules for Handling Exception Successfully.

135 - Operating System

UNIT - I: Structure of Operating System, Operating System functions, Characteristics of Modern OS. Process Management: Process states, Creation, Termination, Operations on Process, Concurrent process, Processes Threads, Multithreading, Micro Kernels CPU Scheduling: Schedulers, Scheduling Methodology, CPU Scheduling Algorithm: FCFS, SJF, RR, Priority Scheduling.

UNIT – II: Performance comparison : Deterministic Modeling , Queuing analysis, Simulators. Deadlock and Starvation: Resource Allocation Graph, Conditions for Dead Lock, Dead Lock Prevention, Dead Lock Detection, Recovery from Deadlock.

UNIT - III: Memory Management: Logical Vs. Physical Address Space, Swapping, Memory Management Requirement, Dynamic Loading and Dynamic Linking, Memory Allocation Method: Single Partition allocation, Multiple Partitions, Compaction, paging, segmentation, Segmentation with paging. Protection.

UNIT - IV: I/O Management: I/O hardware, I/O Buffering, Disk I/O, Raid, Disk Cache. File Management: File Management system, File Accessing Methods, File Directories, File Allocation Methods, File Space Management, Disk Space Management, Record blocking. Protection Mechanisms: Cryptography, Digital Signature, User Authentication.

136 - Web Programming

Unit I Internet, Internet users and working, Information on Internet, Requirements for connecting to Internet, Basic Internet Terms, Introduction to world wide web, Evaluation of world wide web, basic features, web browsers, popular web browsers, web servers, HTTP, URL, Search Engines, Search Engines categories, how to use Search Engines, Searching criterion, Introduction to browsers, Working with e-mail, Parts of e-mail text, working with messages.

Unit II Java Script -Introduction , values and variables, operators, loops and various statements in java script, Date object, Math object, string object, window events, working with forms, document object, screen object, navigator object, images and animation, java script objects Declaration, definition, and referencing. Identifiers scope rules. Recursion. Arrays; declaration, allocation & accessing, sorting of

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arrays, JavaScript objects : Math, String, Date, Number and Boolean. Documents, forms, Statements, Functions, Objects in Java scripts, events and event handling, arrays, FORMS, Buttons, Checkboxes, Text fields and text areas.

Unit-III Introduction to active server pages (ASP) : working of ASP, setup, ASP objects, file system object, session tracking & cookies. Accessing databases using ASP. XML: Introduction, Document type definition, XML Schemas, Document Object model, Presenting XML, Using XML Processors: DOM and SAX

Unit IV XML displaying an XML Document, Data interchange with an XML Document, advantages of integrating ASP & XML. Introduction to Java Server Pages (JSP): scripting standard actions, Directives. Custom tag libraries. JSP & XML case study: advantages of integrating JSP & XML.

137 - Database Management System

UNIT- I : DBMS : Definition: Databases, DBMS, Problems with traditional file processing system, Objectives of the database systems, Three level architectures of DBMS, Component of DBMS, Database Administrator, Database Users, Data model, Different types of data models, Concepts of Hierarchical, Network Models.

UNIT-II : E-R Models : Basic Concepts, Entity, Attributes, Relation Ship, Mapping, Keys, Weak and Strong Entity Set, Problems on E-R Diagrams, Extended E-R Features: Specialization, Generalization, Aggregation, Problems on Reduction of an E-R Schema to Tables, Tabular representation of Strong, Weak entity Sets and Relationship Sets.

UNIT-III : Relational Model: Structure, Relational Algebra, Fundamental Operations, Set – Intersection, Natural Join, Division and Assignment Operation. Extended Relational Algebra Operations, Aggregate Functions.

UNIT-IV : Functional Dependency: Functional Dependency, Fully Functional Dependency, Partial Dependency, Transitive Dependency, Multi Valued Dependency. Normalization, Normal Forms (1NF, 2NF, 3NF, BCNF, 4NF, 5NF). Problems on Normal forms.

138 - Applied Mathematics-II

UNIT - I : Set Theory: Set, Subsets operations on set, Venn diagram, algebra on sets, Cartesian product of sets, Binary relations, Properties of binary relation, Relation matrix and the graph of relation, Partial order relations, Equivalence relations, Equivalence Classes, Composition of relations.

UNIT - II : Functions - definition, types of function, Invertible functions composition of functions. Counting - Permutation, Combinations, The pigeonhole principle, recurrence relation, Mathematical Induction.

UNIT - III : Algebraic Structures Semi groups & groups: Binary operations, Semi groups, isomorphism and Homomorphism, Product and Quotient of semi groups, Groups, subgroups, products and Quotient of groups. Lattices: - Lattice concepts, isomorphic Lattices, Properties of lattices, Finite Boolean algebras.

UNIT - IV : Graph Theory: Basic concepts, types of graphs, Representation of graph in memory, Euler path and circuits, Hamiltonian Path and circuits. Trees:- Basic concepts, Libeled trees, Undirected trees.


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139 - Practical-I Practical-I Based on Paper I &II

140 - Practical-II Practical-II Based on Paper III &IV

141 - Practical-III Practical-III Based on Paper V &VI

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Bachelor of Science (B.Sc. (IT)) Semester-III

142 - Microprocessor and ALP

UNIT-I An over view of 8085, Architecture of 8086 Microprocessor. Special functions of General purpose registers. 8086 flag register and function of 8086 Flags. Addressing modes of 8086. Instruction set of 8086. Assembler directives, simple programs, procedures, and macros. Assembly language programs involving logical, Branch & Call instructions, sorting, evaluation of arithmetic expressions, string manipulation.

UNIT-II Pin diagram of 8086-Minimum mode and maximum mode of operation. Timing diagram. Memory interfacing to 8086 (Static RAM & EPROM). Need for DMA. DMA data transfer Method. Interfacing with 8237/8257. 8255 PPI – various modes of operation and interfacing to 8086. Interfacing Keyboard, Displays, 8279 Stepper Motor and actuators. D/A and A/D converter interfacing.

UNIT-III Interrupt structure of 8086. Vector interrupt table. Interrupt service routines. Introduction to DOS and BIOS interrupts. 8259 PIC Architecture and interfacing cascading of interrupt controller and its importance. Serial data transfer schemes. Asynchronous and Synchronous data transfer schemes. 8251 USART architecture and interfacing. TTL to RS 232C and RS232C to TTL conversion. Sample program of serial data transfer. Introduction to High-speed serial communications standards, USB.

UNIT-IV Advanced Micro Processors - Introduction to 80286, Salient Features of 80386, Real and Protected Mode Segmentation & Paging, Salient Features of Pentium, Branch Prediction, Overview of RISC Processors.

143 - Data Structures

UNIT - I : LINKED LIST : Linked List, Representation of Single, Double, Header, Circular Single and Double Linked list, All possible operations on Single and Double linked List using Dynamic representation, Polynomial Representation and its Manipulation.

UNIT - II : STACKS : Stacks terminology, Representation of Stacks in Memory, Operation on Stacks, Polish Notations, Translation of infix to postfix & prefix expression, Infix to Postfix Conversion, Evaluation of Postfix Expression, Recursion, Problems on Recursion, Quick Sort and Tower of Hanoi Problem.

UNIT - III : QUEUE : Representation of Queues in Memory, Circular Queue. Dequeue and Priority Queue. Operations of above Structure using Array and Linked Representation. SORTING AND SEARCHING: Selection Sort, Insertion Sort, Merge Sort, Efficiency of Sorting Methods, Big-O Notations. Hash Tables, Hashing Technique, Collision Resolution Technique.

UNIT - IV : TREES : Basic Terminologies, Representation of Binary Trees in Memory, Traversing of Binary tree, Binary Search Tree, Operation on Binary Search Tree, Heap Tree, Operation on Heap Tree, Heap Sort Method GRAPHS : Basic Terminologies, Definition and Representation of Graphs in Memory: Linked List and Matrix Representation. Traversing graphs : BSF, DFS Method.

144 - Data Communication & Network-I

Unit-I:- Introduction to data communications and Networking:- Introduction, history, data communication and network architecture, protocols and standards, standards organization , layered network architecture, open systems interconnection , data communications circuits, serial and parallel


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data transmission, circuit arrangements and data communication networks , alternate protocol suite. Signal , Noise , Modulation and Demodulation:- Introduction, signal analysis, Electrical Noise and Signal to Noise ratio, analog modulation systems , Information capacity, bits, Bit rate, Baud and Mary Encoding , digital modulation.

Unit –II: Transmission Media:- Introduction , Metallic cable Metallic transmission lines, transverse electromagnetic waves, characteristics , transmission line classifications, M.T line types, M.T. line equivalent circuit , Wave propagation on metallic transmission lines , metallic transmission line losses. Optical fiber Transmission media:- Introduction, Advantages and Disadvantages of optical fiber cables , Electromagnetic spectrum , O.F. Communication system block diagram, Optical fiber Construction , the physics of light, velocity of propagation, propagation of light through an Optical fiber cable, Optical fiber modes and classifications , O.F. Comparison , losses in optical fiber cables, light sources, light detectors , lasers Digital transmission:- Introduction, Pulse modulation, pulse code modulation, dynamic range, Signal Voltage-to-quantization Noise Voltage Ratio, Linear Versus Nonlinear PCM Codes, Companding, PCM Line Speed, Delta Modulation PCM & Differential PCM.

Unit –III Wireless Communication Systems:- Introduction, Electromagnetic Polarization, Rays & Wavefronts, Electromagnetic Radiation, Spherical wavefronts & the Inverse Square law, Wave Attenuation & Absorption, Optical Properties of Radio Waves, Terrestrial Propagation of Electromagnetic Waves, Skip Distance, free-Space Pathloss, Microwave Communication Systems, Satellite Communication Systems. Data Communication Codes, Error Control & data Formats:- Introduction, Data Communication Character Codes, Barcodes, Error Control, Error Detection, Error Correction, Character Synchronization. Data Communication Hardware, Data Communications Circuit, Line Control Unit, serial Interfaces.

Unit – IV Network Topologies & Connectivity Devices:- Introduction, Transmission Formats, Topologies, Collision & Broadcast Domains, Connectivity Devices, Standard Connectivity Device Logic Symbols Local Area Networks:- Introduction, IEEE Project 802, Access Control Methodologies, Medium access Control, LAN Data Link Layer, Logic Link Control Sublayer, MAC Sublayer, Ethernet.

145 - Linux Operating System

UNIT - I : Logging In and Logging Out, Anatomy of Linux OS, Directory Structure, /usr Directory, File Types: User datafiles, System data files, Executable files. Naming files and directories, Spawning Processes. Shell: Creating User Account, Shell Program, bash shell, Changing shell prompt. Commands: Basic Syntax for a command, Exploring the Home Directory, ls, mkdir, rmdir, stat, cat, rm, mv, cp

UNIT - II : Editor: Vi editor. Hooking up Hardware Devices: Formatting a Floppy Disk, Gathering important system information. Backing Up and restoring the File System: Simple Backup, gzip, gunzip, tar. Printing files: Print Spool directory, Sending files to Printer.

UNIT - III : Sharing Files with other Users: Maintaining User Accounts, Changing Password, Creating Group Accounts, Granting Access to files, Changing File Ownership, Protecting Files, Making a File ReadOnly. Working with Processes: Types of processes, ps Command, Creating process, killing process, free command and top utility.

UNIT - IV : Managing Disk Space: df, du commands, Creating Additional Free Disk Space, Locating Unused Files, Setting System Clock. Communication Utilities: who, who am i, finger, mesg, write,


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wall, talk, Creating a message of the day. X Window System, Graphical User Interfaces: KDE and GNOME Desktop Environment.

146 - E-Commerce

UNIT - I : Introduction to e-Commerce, Scope of electronic commerce, definition, e-Commerce and Trade Cycle, e- Markets, Internet e-Commerce in perspective. Value chain, Supply chain, Porters value chain model, Inter organizational value chains.

UNIT - II : Business strategy in electronic age: Competitive advantages, Strategy, Porters model, First Movers advantages, Advantages using e-Commerce. Introduction to business strategy, Strategic implications of IT, Technology, Business environment, Business capability, Existing business strategy, Strategy formulation and implementation planning, e-Commerce implementation, e-Commerce evaluation.

UNIT - III : Business to Business e-Commerce: Inter organizational transactions, The credit transaction trade cycle, A variety of transaction, Pens and things, Electronics Market, Usage of e-Market, Advantages and disadvantages of e-Market, Future of e-Market, EDI, introduction, EDI and Business.

UNIT - IV : Business to Consumer Electronic Commerce: Consumer trade transaction, Internet e-Commerce, eShop, Other e-Commerce technologies, Advantages and disadvantages of consumer e-Commerce. Elements of e-Commerce: elements, e-Visibility, e-Shop, Online payments, Internet e-Commerce security.

147 - Statistical Methods

UNIT- I: Introduction - Definition of Statistics, Importance and scope of Statistics, Limitations of statistics, Distrust of Statistics. Statistical Data Collection - Primary and Secondary data, Methods of Collecting Primary data, Sources and Secondary Data, Census and Sample Investigation. Presentation of statistical Data - Classification, Tabulation, Frequency Distribution, Diagrams and Graphs. Frequency Distributions and

UNIT- II : Measures of Central Tendency - Frequency Distribution, Continuous Frequency Distribution, Graphic Representation of a Frequency Distribution Average or Measures of Central Tendency or Measures of Locations, Requisites for an ideal Measure of Central Tendency Arithmetic: Mean Median, Mode, Geometric Mean and Harmonic Mean, Weighted Average, Relationship amongst different Averages.

UNIT- III: Measures of Dispersion, Skewness and Kurtosis - Meaning and Significance of Dispersion, Methods of Measuring Dispersion - Range, Quartile, Mean Deviation, Standard Deviation, Coefficient of Skewness, Kurtosis, Coefficient of Dispersion, Coefficient of Variation.

UNIT- IV: Correlation and Regression - Definition of Correlation, . Scatter Diagram, Karl Pearson Coefficient of Correlation, Limits for Correlation Coefficient, Definition of Regression, Lines of Regression, Regression Curves, Regression coefficients, properties of Regression coefficients, Correlation Analysis vs. Regression Analysis.

148 - Practical-I Based on Paper I &II

149 - Practical-II Practical-II Based on Paper III &IV

150 - Practical-III Practical-III Based on Paper V &VI


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Bachelor of Science (B.Sc. (IT)) Semester-IV

151 - Software Engineering

Unit I Introduction to Software Engineering : The evolving role of software, Changing Nature of Software, Software myths. A Generic view of process : Software engineering- A layered technology, a process framework, The Capability Maturity Model Integration (CMMI), Process patterns, process assessment, personal and team process models.

Unit II Process models : The waterfall model, Incremental process models, Evolutionary process models, The Unified process. Software Requirements : Functional and non-functional requirements, User requirements, System requirements, Interface specification, the software requirements document.

Unit III Requirements engineering process : Feasibility studies, Requirements elicitation and analysis, Requirements validation, Requirements management. System models : Context Models, Behavioral models, Data models, Object models, structured methods.

Unit IV Design Engineering : Design process and Design quality, Design concepts, the design model

152 - Java Programming

UNIT - I : Introduction to Java: -History of Java, features of Java, getting started with Java. Java programs:- Introduction of Application & Applets. Variables: -Variable naming, variable initialization, assign values, Rules of variables, Scope of variable. Operators: -Arithmetic, Assignment, Unary, Comparison, Shift, BitWise, Logical, Conditional, New, Special, Relational. Data types:-Integers, Char, String, Float etc. Typecasting: Tokens: -Java tokens Order of precedence of operators Streams: - Input and output.

UNIT - II : Creating a class & subclass: -Declaring a class, Naming class, Rules to assign Class & Subclass, Creating a new object, Class of an object. Data members: -Declaring data member, Naming variables, using class members. Methods: -Using data members, Invoke a method, passing arguments to a method, calling method. Access Specifier & Modifiers: -Public, Private, Protected, Static & Final. Overloading: -Method overloading, Constructor overloading. Java class library: - Different types of classes. Decision making & loops:-If-then-else, Switch,?: operator, While-loop, do-while loop, for. Array: -Creating an array, onedimensional array, two-dimensional array. String: -String array, string methods. Inheritance: -Single & multiple inheritances Interfaces: -Defining interfaces, extending interfaces, implementing interfaces.

UNIT - III : Packages: -Java API packages, creating packages, accessing packages, adding a class to packages. Import statement: - Introduction & implementation of import statement. Applets:- Introduction to Applets & Application, how applets application are different creating An applet. Applets life cycle, designing a web page, creating an executable applet, running the applet, applet tags, passing a parameter to applet, HTML tag, Converting applet to application. Threads:-Overview of threads, single & multiple threads, life cycle of threads, stopping & blocking threads, working with threads, priority to thread, synchronization. Exceptions & Errors:-Introduction, types of error, exception, syntax of exception, handling techniques, exception for Debugging.

UNIT - IV : Event: -Event driven programming, handling an (AWT) events. Graphic class:- Introduction, the graphic classes, drawing & filling of lines, rectangle, circle & ellipse, arcs, polygons,

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text & fonts, creating a font class, font objects, text, coloring object. Streams:-Introduction, Abstract stream classes, file input & output. AWT Applications: -Creating a GUI using AWT toolkit, using component class, frames. Components & Control: -Textfield, textarea class, label, button, choice, list, checkbox, class, and combo. Menus: -Creating a popup menus. Image: - Type of image, Properties of an image, Displaying an image. Layouts: -Using Window Listener interface, Different types of Layout, Layout manager, Flow manager, Grid manager. Container: -Different types of container (Frame, Dialog, Panel)

153 - Data Communication & Network-II

Unit-I Communication Architecture, Protocols & Architecture: Protocols, The Layers Approach, OSI Model, TCP/IP protocol suite, System Network Architecture. Internetworking: Principles of Internetworking, Bridges, Routers, Repeaters, Gateways, Connection Oriented Internetworking, Connectionless Internetworking, Connectionless Internetwork Protocol, Router-level protocol.

Unit II Transport Protocols- Transport services, Protocol Mechanism, Network services, ISO Transport Standards, TCP, UDP, TCP and UDP Packet format, Lightweight Transport Protocol.

Unit III Session Services & Protocols- Session Characteristics, OSI Session Services, Definition, OSI Session Protocol definition. DNS, FTP, HTTP.

Unit IV Digital Network, ISDN & Broadband ISDN : Overview of ISDN, Architecture and Interfaces of ISDN, Transmission structure, User Access, ISDN protocols, Broadband ISDN(B-ISDN).

154 - Oracle

Unit I Introduction to Oracle - Relational database management system (RDBMS), Codd's Rules for RDBMS, Oracle as multiuser system, Logging and Logging out of Oracle, Database Administrator (DBA) and its Role, Creation of user and Password. Introduction to Structured Query language (SQL) – History and standardization of SQL, benefits of SQL, elements of SQL, Languages, Database objects, Reserve words, Keywords. Data types – Char, Varchar, Date, Number, Long, Raw and Long raw.

Unit II SQL Command – DDL command, DML command, DRL command, Aggregate function, Clauses, Set operator, Predicates, Join, Sub queries, Views. Simple reports commands. PL/SQL - Introduction to PL/SQL, Advantages of PL/SQL, PL/SQL block structure, Character Set, Literals, PL/SQL data type, Variables, Control and loop statements, Loops and Labels.

Unit III Cursor – PL/SQL Cursor, Explicit Cursors, Implicit Cursors. Exception Management - User defined, predefined exceptions, subprograms and packages - procedures, functions, package specification, body, calling sub programs, advantages of packages, cursers in packages.

Unit IV Database Triggers & Built in Packages - Database triggers-syntax, parts, statement, body, restriction, types. Built in packages – DBMS standard. DBMS OUTPUT - Collection, member functions and procedures, PL/SQL table and records, declaration, referring, maintaining row count, insertions, deletions, nested tables, varying, arrays, initialization, declaration, varrays, member functions and procedures.


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155 - Compiler Construction

UNIT - I : Compilers and translators, need, the structure of a compiler, Lexical Analysis, Syntax analysis, Intermediate code Generation, Optimization, Code Generation, Book keeping, Error Handling

UNIT - II : High Level programming languages, Definitions of programming languages, The lexical and syntactic structure of a language, Data elements, structures, Operators, Assignment Statements, Data Environments, Parameter transmission, Storage management.

UNIT - III : The role of the lexical analyzer, Approach to the design of lexical analyzer, Implementation of lexical analyzer, Context free grammars, Derivations and parse trees, Ambiguous grammar.

UNIT - IV : Parsers, Shift-reduce parsing, Operator precedence parsing, Top-down parsing, predictive parsers, Symbol Table, Code Optimization: The principal source optimization, Loop optimization, The DAG representation of basic blocks, Code Generation : A machine model, a simple code generator, Register Allocation and assignment.

156 - Numerical Methods

UNIT - I : Roots of Non-Linear Equations : Algebraic equation, Polynomial equation, Transcendental equation, Iterative method, Starting & Stopping Iterative method, Bisection Method, False Position method, Newton Raphson Method: Secant Method, Determining all possible roots, Multiple roots of polynomial, Complex Roots using Muller's Method.

UNIT - II : Solution to Linear Equations Existence of solution, Gauss Elimination Method, Gauss elimination with pivoting, Gauss Jordan Method, Round off errors and refinement, m Conditioned system, Matrix inversion method.

UNIT - III : Linear interpolation, Lagrange Interpolation, Spline Interpolation, Interpolation with equidistant points, Least Square regression Fitting, Transcendental equations, Multiple linear regression, m conditioning in Least square

UNIT - IV : Integration & Differentiation : Trapezoidal Rule, Simpson 1/3 Rule, Simpson 3/8 rule, Gaussian Integration, Solution to differential equation (using Runge-Kutta second and fourth order methods, Multistep method for differential equations (Milne-Simpson method, Adams-bashforth

157 - Practical-I Practical-I Based on Paper I &II

158 - Practical-II Practical-II Based on Paper III &IV

159 - Practical-III Practical-III Based on Paper V &VI


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Bachelor of Science (B.Sc. (IT)) Semester-V

160 - Software Project Management

Unit I Managing Software Project: Process & Project Management, Project Management and the CMM, Project Management at Infosys, Introduction to CMMI, PCMM, The Project Planning Infrastructure: The process data base, process capability Baseline, Process Assets and the Body of Knowledge System.

Unit II Process Planning: The Information System Development Process, Requirement Analysis, Requirement Change Management, Effort Estimation & Scheduling: Estimation and Scheduling Concepts, Effort – Estimation, Scheduling.

Unit III Quality Planning: Quality Concepts, Quantitative quality Management Planning, Defect Prevention Planning. Risk Management: Concepts of Risks and Risk Management, Risk Assessment, Risk Control.

Unit IV Measurement and Planning: Concepts in measurement, Measurements, Project tracking. Project Management Plan: Team Management, Customer Communication and Issue Resolution, Structure of the Project Management Plan.

161 - Dot Net Framework and C#

Unit-1 The .Net framework: Introduction, The Origin of .Net Technology, Common Language Runtime (CLR), Common Type System (CTS), Common Language Specification (CLS), Microsoft Intermediate Language (MSIL), Just-In –Time Compilation, Framework Base Classes.

Unit-II C -Sharp Language (C#): Introduction, Data Types, Identifiers, Variables, Constants, Literals, Array and Strings, Object and Classes, Inheritance and Polymorphism, Operator Overloading, Interfaces, Delegates and Events. Type conversion.

Unit-III C# Using Libraries: Namespace- System, Input-Output, Multi-Threading, Networking and sockets, Managing Console I/O Operations, Windows Forms, Error Handling.

Unit-IV Advanced Features Using C#: Web Services, Window Services, Asp.net Web Form Controls, ADO.Net. Distributed Application in C#, Unsafe Mode, Graphical Device interface with C#. .Net Assemblies and Attribute: .Net Assemblies features and structure, private and share assemblies, Built-In attribute and custom attribute. Introduction about generic.

162 - Network Security

Unit I Introduction, Security Concepts, Threats and Risks, Attacks – Passive and Active, Security Services, Confidentiality, Authentication, Non-Repudiation, Integrity, Access Control, Availability, Model for Internetwork Security, Internet Standards and RFCs Access Control Mechanisms ,Access Matrix, HRU, TAM, ACL and capabilities

Unit II Access Control Models, Chinese Wall, Clark-Wilson, Bell-LaPadula, Non- Interference and Role Base Model. Cryptography, Secret Key and Public Key Cryptosystems, Symmetric Ciphers, Block Ciphers and Stream Ciphers, DES, IDEA and Key Escrow, RSA and ElGamal.


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Unit III Secure Hash and Key management, Digital Signature and Non-repudiation, cryptanalysis. Network Security, Objectives and Architectures, Internet Security Protocols, IP encapsulating Security Protocol, Network and Transport Layer Security.

Unit IV Network Security Applications, Authentication Mechanisms: a) Passwords, b) Cryptographic authentication protocol, c) Smart Card, d) Biometrics, e) Digital Signatures and seals, f) Kerberos, g) X.509 LDAP Directory. Web Security : a) SSL Encryption b) TLS, SET, E-mail Security, PGP's / MIME, IP Security, Access and System Security , Intruders, Intrusion Detection and Prevention , Firewall a) Hardware Firewall b) Software Firewall c) Application Firewall d) Packet Filtering. e). Packet Analysis, Proxy Servers, Firewall setting in Proxy, ACL in Proxy

163 - Data Warehousing

Unit I Introduction, Definition, Components, Warehousing databases, Users, Advantages, Features, Data Granularity, Information Flow Mechanism, Metadata, Classes of Data, Lifecycle of Data, Data Flow. Architecture of Data Warehouse, characteristics, Goals, Data Marts, Building Data Marts, Pushing and Pulling Data,

Unit II Data Warehousing Schema, Dimensional Modeling, Star Schema, Snowflake Schema, Aggregate Tables, Fact Constellation Schema, Data Modeling, Dimensional Modeling: Dimension Table, Fact Tables, Fatless Fact Tables, Updates to Dimension Tables, other types of dimension table, Performance of Data Warehouse. ELT Process: Data Extraction, Data Transformation, Data Loading, Data Quality

Unit III Data warehousing design Review, Developing data warehouse, Testing, Monitoring, Tuning, Feedback Loops. OLAP in Data warehouse: OLAP, ROLAP, HOLAP, Multidimensional Analysis, OLAP Functions, OLAP Application's, OLAP Models, OLAP Considerations, Tools and Products, Data Design, Administration and Performance, OLAP Platforms

Unit IV Building Data Warehouse: Problem Definition, Success Factors, Requirement Analysis, Planning, Design Stage, Building and Implementation of Data Marts, Building Data Warehousing, Backup and Recovery, quality Frameworks, Operating warehouse, Recipe for Successful Warehouse, Pitfalls, factor,

164 - VB Programming

UNIT-I : Working with Visual Basic Window Components: Menu Bar, Tool Bar, Project Explorer Window, Form Layout Window, properties Window, Toolbox, Code Editor Window Working with Forms: Properties, Events, Methods Working with Basic Controls: Label, CommandButton, TextBox, OptionButton, Frame, CheckBox, ListBox, ComboBox, Image, Scroll, Picture, Timer, DriveListBox, DirListBox, FileListBox and Shape Controls. Basic Programming Fundamentals: Variables, Data types, Constant, Conversion Function. Scope of Variable: Public, Private Static. Operators: Logical, Arithmetic, Concatenation, Comparison. Decision Structure: If.. Then, If..Then..Else, Select Case.. End Case. Loop Structure: Do..While, While.. Wend, For.. Next, With..EndWith. DoEvents()

UNIT-II : Arrays: Dynamic Array, Preserve and Control arrays. Procedure: General procedure, General Methods for Passing Arguments to a Procedure, Functions: User-Interaction, String, Math, Date, Conversion Functions. Modules: Form, Standard.


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UNIT-III : Menus: Creating, Adding Menu Items, Creating Shortcut, Adding Separators Bars, Submenus, Code for Menus. Creating Popup Menu: System, Custom. Database Handling: Database Concepts, Creating and Accessing Database, Using Data Control. Using DAO: Creating Search Programs, Numeric Search and Complex Search Programs.

UNIT-IV : Using ADO Data Control, Data Link, ODBC Data Source name, Using Connection String, Creating Navigating buttons. Working with Advanced Data Controls : DataList Control, DataCombo Control, DataGrid Control and Msflexgrid Control. Handling Errors : Run Time, Trapping and Handling Error, ERR Object. Data Environment and Data Reports.

165 - Graph Theory

Unit 1 : Graphs and operations on graphs Definition and elementary results, Types of graphs, Isomorphism, Matrix representation of graphs: Adjacency matrix and incidence matrix, Subgraphs and induced graphs, Complement of a graph, Self complementary graphs, Union, intersection of graphs, Ring sum of two graphs.

Unit 2 Connected Graphs Definitions: walk, trail, tour, path and circuit, Definitions of connected, disconnected graphs, Dijkstra's shortest path algorithm, Connectivity: cut-vertex, vertex connectivity.

Unit 3 : Tree Graphs Tree : Definition, Theorem : A tree with n vertices has $n - 1$ edges, Theorem : A connected graph G with n vertices and $n - 1$ edges is a tree, Theorem : A graph with n vertices is a tree if and only if it is circuit free and has $n - 1$ edges, Theorem : A graph G is a tree if and only if it is minimally connected, Center of a tree, Spanning tree: Definition and examples, Fundamental circuit and cut – set : Definition, Binary trees and elementary results, Kruskal's algorithm.

Unit 4 : Directed Graphs Definition, types of directed graphs, Directed (rooted) trees, arborescence and Polish notation, Isomorphism of digraphs, Connectedness in digraphs, Euler digraph, Network and flows: Definition, examples, Maximal flow algorithm.

166 - Practical-I Practical-I Based on Paper I &II

167 - Practical-II Practical-II Based on Paper III &IV

168 - Practical-III Practical-III Based on Paper V &VI


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Bachelor of Science (B.Sc. (IT)) Semester-VI

169 - Enterprise Resource Planning

Unit I INTRODUCTION Business needs and ERP, ERP as an overview, entries as an overview, Benefits of ERP, ERP and related technologies, ERP architecture, business process reengineering, data warehousing, data mining, on line analytical processing supply choice management.

Unit II ERP: Client server architecture and ERP, ERP implementation life cycle, implementation methodologies, ERP implementation – The hidden cost, organizing implementations, vendors, consultants and users, contracts with vendors, consultants and employees, project management and monitoring. After ERP implementation.

Unit III THE BUSINESS MODULE : Business models in an ERP package, finance, manufacturing human resource, plant maintenance, materials management, quality management sales and distribution.

Unit IV Selection of ERP, SWOT analysis of various ERP products supply chain enabled ERP. ERP and Electronic Data Interchange (EDI) integration, ERP in manufacturing and non manufacturing industries.

170 - Advance Java Programming

Unit I Core Java: Introduction, Operators, Data types, Variables, Arrays, Control Statements, Methods & Classes, Inheritance, Package and Interface, Applets Java swing: Creating a swing Applet and Application, Programming using Panes, Pluggable Look and feel, Labels, Text fields, Buttons, Toggle Buttons, Checkboxes, Radio Buttons, View Ports, Scroll Panes, Scroll Bars, List, Combo Box, Progress bars, Menus and Toolbars, Layered Panes, Tabbed Panes, Split Panes, Layouts, Windows, Dialog Boxes, Inner frame.

Unit II JDBC: The connectivity Model, JDBC/ODBC Bridge, Java.sql package, connectivity to remote database, navigating through multiple rows retrieved from a database.

Unit III Java Beans: Application Builder tools, The bean developer kit(BDK), JAR files, Introduction, Developing a simple bean, using bound properties, The java Beans API, Session Beans, Entity Beans, Introduction to Enterprise Java Beans(EJB), Introduction to RMI(Remote Method Invocation): A simple client-server application using RMI.

Unit IV Java Servlets: Servlet basic, Servlet API basic, Life cycle of a Servlet, Running Servlet, Debugging Servlet, Thread-safe Servlet, HTTP Redirects, Cookies, Introduction to Java server pages(JSP).

171 - Cloud Computing

Unit I Introduction to Cloud Computing, The Evolution of Cloud Computing, Hardware Evolution, Internet Software Evolution, Server Virtualization, Web Services Deliver from the Cloud, Communication-as-a-Service, Infrastructure-as-a-Service, Monitoring-as-aService, Platform-as-a-Service, Software-as-aService, Building Cloud Network

Unit II Federation in the Cloud, Presence in the Cloud, Privacy and its Relation to Cloud-Based Information Systems, Security in the Cloud, Common Standards in the Cloud, End-User Access to the Cloud Computing


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Unit III Introduction, Advancing towards a Utility Model, Evolving IT infrastructure, Evolving Software Applications, Continuum of Utilities, Standards and Working Groups, Standards Bodies and Working Groups, Service Oriented Architecture, Business Process Execution Language, Interoperability Standards for Data Center Management, Utility Computing Technology, Virtualization, Hyper Threading, Blade Servers, Automated Provisioning, Policy Based Automation, Application Management, Evaluating Utility Management Technology, Virtual Test and development Environment, Data Center Challenges and Solutions, Automating the Data Center

Unit IV Software Utility Application Architecture, Characteristics of an SaaS, Software Utility Applications, Cost Versus Value, Software Application Services Framework, Common Enablers, Conceptual view to Reality, Business Profits, - Implementing Database Systems for Multitenant Architecture

172 - Data Mining

Unit I Data Mining: Introduction, Definitions, KDD Vs Data Mining, DBMA Vs Data Mining, Data Mining Problems, Data Models, OLAP, User Perspectives, Issues, Challenges, Trends, Application Areas and Applications Frequent Pattern Mining: Basic Problem Definition, Association Rule, Mining Association Rule, Applications, Variations, Interestingness, Methods of Discovering Association Rule, Priori Algorithm, Frequent Itemset Mining (FIM) Algorithm, Comparison of FIM Algorithm, Optimal FIM Algorithm, Incremental Mining, Conciseness of Results, Sequential Rule

Unit II Classification, Definition, Applications, Evaluations of Classifiers, Issues, Classification Techniques, Optimal Classification Algorithm, Regression Decision Tree, Tree Construction Principal, Best Split, Splitting Indices, Splitting Criteria, Decision Tree Construction Algorithm

Unit III Clustering, Definition, Applications, Measurement of Simplicity, Evaluation of Clustering Algorithm, Classification of Clustering Algorithm, Partition Method, Hierarchical Method, Density Base Method, Grid Base Method, Outlier Detection,

Unit IV Partition Discovery, Relational Data, Transactional Data, Distributed Data, Spatial Data, Data Stream, Time Series Data, Text and Web Data, Multidimensional Data

173 - Animation Techniques

Unit I What is mean by Animation, Why we need Animation, of Animation, Uses of Animation, Types of Animation, Principles of Animation, Some Techniques of Animation, Animation on the WEB, 3D Animation, Special Effects, Creating Animation.

Unit II Creating Animation in Flash: Introduction to Flash Animation, Introduction to Flash, Working with the Timeline and Frame-based Animation, Working with the Timeline and Tween-based Animation, Understanding Layers, Actionscript.

Unit III 3D Animation & its Concepts, Types of 3D Animation, Skeleton & Kinetic 3D Animation – Texturing & Lighting of 3D Animation, 3D Camera Tracking, Applications & Software of 3D Animation.

Unit IV Motion Caption, Formats, Methods, Usages, Expression, Motion Capture software's, Script Animation Usage – Different Language of Script Animation Among the Software. Concept Development, Story Developing, Audio & Video, Color Model, Device Independent Color Model, Gamma and Gamma Correction, Production Budgets, 3D Animated Movies.


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174 - Operation Research

Unit 1 Overview of operations Research: OR models, OR Techniques Linear Programming : Introduction, Graphical solution; Graphical sensitivity analysis, The standard form of linear programming problems, Basic feasible solutions, unrestricted variables, simplex algorithm , artificial variables, Big M and two phase method, Degeneracy, alternative optima, unbounded solutions, infeasible solutions.

Unit 2 Dual problems: Relation between primal and dual problems – Dual simplex method Transportation model: starting solutions. North West corner Rule, lowest cost method, Vogels approximation method – Transportation algorithms – Assignment problem – Hungarian Method.

Unit 3 Network Models: Definitions, CPM and PERT, Their Algorithms Integer Programming : Branch and Bound Algorithms cutting plan algorithm. Dynamic Programming: Recursive nature of dynamic programming, Forward and Backward Recursion.

Unit 4 Assignment Problem – Zero-One Programming Model for Assignment Problem, Types of Assignment Problem, Hungarian Method, Branch and Bound Technique for Assignment Problem

175 - Practical-I Practical-I Based on Paper I &II

176 - Practical-II Practical-II Based on Paper III &IV

177 - Practical-III Practical-III Based on Paper V &VI


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Semester-I

178 - Discrete Mathematical Structure

Unit-1 : Fundamental – Sets and Subsets, operations on sets, sequence, Division in the integer, Matrices, Mathematics Structures. Logic-Proposition and Logical Operation Conditional Statements, Methods of Proof, Mathematical Induction, Mathematics Logic- Statements and Notation, Connectives ,Normal Forms ,The Theory of Interface for the statement Calculus ,Inference Theory of the Predicate Calculus,

Unit-2 : Counting- Permutation, Combination, The pigeonhole Principle, Recurrence Relations. Relational and Digraphs- Product sets and Partitions, Relations and Digraphs, Paths in Relations and Digraphs Properties of Relations, Equivalence Relations, Computer Representation of Relations and Digraph, Manipulation of Relations, Transitive Closure and Warshall's Algorithms. Functions- Definition and Introduction, Function for Computer Science, Permutation Functions, Growth of Functions.

Unit-3 : Graph Theory : Basic Concept of Graph Theory, Euler Paths and Circuits, Hamiltonian Paths and Circuits. Other relations and Structure- Partially Ordered Sets, Lattices Finite Boolean-Algebra, Functions of Boolean Algebra's, Boolean function as Boolean Polynomials. Tree-Introduction Unidirected Tree, Minimal Spanning Trees.

Unit-4 : Semigroups and Groups: Binary Operations Revisited, Semigroups, Products and Quotations of Groups. Introduction to computability –Languages Finite –State Machines, Semigroup, Machines and Language.

179 - Programming in Java

Unit-1 : Java and Internet, Features of java: security, portability, multithreading, etc, Bytecode, Datatypes, variables and Arrays, Operators, Classes : declaring objects, methods, constructor, overloading constructor, garbage collection, finalize() method, static variable and method, final variable, command line argument. Inheritance: super keyword, final with inheritance. Packages and Interfaces. Exception handling : Overview, types, Uncaught exception, try -catch block, multiple catch, nested try, throw, throws, finally, built-in and user- defined exception. Multithreading : Life Cycle, Thread class and Runnable Interface, isAlive(), join(),Priorities, Synchronization : sleep() , run(). Interthread communication : wait(), notify(), notifyAll(), deadlock. String Handling.

Unit-2: Wrapper classes, Applet: Applet Class, Architecture, Life Cycle, Display methods, HTML APPLET Tag, Passing parameter to Applet AWT : working with Windows, Controls, Layout Manager, Menus. Swings. Event handling.

Unit-3: JDBC : Architecture, JDBC-ODBC bridge driver, SQL Package, ResultSet and its methods. Networking : Socket, Reserve socket, Internet Addressing, InetAddress, TCP/IP client socket, TCP/IP server socket, URL, URL Connection, Datagram. RMI : Introduction, Architecture, Remote Interface, java.rmi. server package, class naming, creating Rmi server and client ,transmitting files using rmi, client side callback, RMISecurityManager class, RMI Exception, Stub and Skeleton.

Unit-4: Servlet : Life Cycle, Tomcat, javax. servlet package, reading servlet parameter, javax.servlet.http package, handling http request and response with HTTPGET and HTTPPOST,


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cookies,session tracking. JSP : Introduction, Types of JSP tags, Application using JSP and Servlet. JavaBeans : Advantages of Beans, BDK, JAR files, Introspection, Developing Beans using BDK

180 - Digital Electronics and Microprocessor

Unit-1 : Number System and Data Representation Number System : Binary, Octal, Decimal and Hexadecimal number system and their inter conversion. Binary Codes : BCD, Excess3 , Parity, Gray, ASCII, EBCDIC codes and their advantages and disadvantages. Data Representation : Positive , negative ,maximum and minimum number representation (related to 8 bit number), real number representation, underflow, overflow , range and accuracy. Binary Arithmetic : Binary addition, decimal subtraction using 9's and 10's compliment, binary subtraction using 1's and 2's compliment, multiplication and division. Logic gates: Truth table, properties and symbolic representation of NOT, AND, OR, NOR , NAND, EXOR, EXNOR gates. NOR and NAND gates as a universal gates .

Unit-2 : Boolean Algebra: Laws and Identities of Boolean algebra, DeMorgan's Theorem , use of Boolean Algebra for simplification of logic expression, K-Map for 2,3,4 variables, simplification of SOP and POS logic expression using K-Map. Combinational circuits: Half adder, Full Adder, Parallel adder, Half subtractor, Full Subtractor, 4-bit binary adder subtractor, Multiplexer, Demultiplexer, Decoder, Encoder, Parity detector.

Unit 3 : Sequential Circuits : Flip-Flops : Construction and working of RSFF, JKRSFF, DFF, TFF, JKFF, and JKMSFF . Counters : Construction and working of asynchronous, synchronous, up-down counter, shift registers and their types, Ring counter, Johnson counter with their time diagram.

Unit-4 : Architecture of 8086 and Assembly Language Programming Block diagram of 8086, Pin diagram of 8086, Addressing modes, Instruction set: Data transfer, Arithmetic, Logical, String manipulations, Control Transfer, Unconditional branch, Conditional branch, Flag, Processor control. Assembler directives and operators, simple assembly programs.

181 - Advanced DBMS and Administration

Unit-1 : Relational Database design: Functional dependencies, and Normalization Normal forms based on primary keys (1 NF, 2 NF, 3 NF, BCNF, 4 NF, 5 NF) Loss less joins and dependency preserving decomposition Query Processing: Query Processing Stages, Query Interpretation, Equivalence of Expressions, Query Resource Utilization, Query Execution Statistics, Query Execution Plan, Estimation of Query Processing Cost, Table Scan, Sample Index Access, Fill Factor, Multiple Index Access, Methods for Joining Tables (Nested Loop, Merge Join, Hybrid Join, Multiple Join) Structure of a Query Optimizer

Unit-2 : Transaction Processing & Concurrency Control: Concept and definition of transaction, ACID properties, serializability, Prioritization, states of transaction, Types of failure, desirable properties of transaction schedules and recoverability, serial usability of schedules, levels of transaction consistency, deadlocks, long duration transactions, transaction performance, transaction processing as implemented in contemporary database, management system. Concurrency Control, locking techniques, techniques based on time-stamp ordering, multiple granularity. Crash Recovery: failure classification, recovery concepts, database backup, recovery concepts based on deferred update and on immediate update. Shadow paging, check points, on-line backup during database updates, crash recovery techniques. Client/Server database: Evolution of client concept, Client/Server environment, characterization of Client/Server computing. Functions of clients server , application partitioning, the two-layer and threelayer architectures, communication between clients and servers.

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Unit-3 : Oracle Database Architecture and Administration: Oracle database architecture, Design, Creation, Migration and Management of Oracle Databases and related database schemes, Data Dictionary views and standard package Maintaining the control, Redo Log files, Managing Tablespaces and Data Files, Storage structure and relationships, Managing rollback segment, Managing tables, Indexes, Managing data Integrity, Managing password security and resources, Managing users, Privileges, roles. Oracle Backup and Recovery Strategies: Backup and recovery considerations, Oracle recovery structure and processes, Oracle backup and recovery configuration, Physical backup, Complete recovery of an Oracle database, Incomplete recovery of an Oracle database with Archiving, Oracle Export / Import utilities, Oracle standby database.

Unit-4 : Oracle Tuning and Troubleshooting: Oracle performance tuning methodology, Oracle alert and trace files, Tuning the shared pool, Buffer Cache, Redo Log buffer, Database configuration and I/O issues, Using Oracle Blocks efficiently, Optimizing sort operations, Rollback segment tuning, Monitoring and detecting lock contention, SQL issues and tuning considerations for different application. Integrity, Security: Need for Database Integrity, Integrity Constraints, Non-Procedural and Procedural Integrity Constraints Specifications in SQL, Introduction to Database Security issues, Authorization and use.

182 - Practical 1 based on theory paper-1 and 2

183 - Practical 2 based on theory paper-3 and 4

184 - Seminar 1


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Semester-II

185 - Windows Programming using VC++

Unit-1 : Windows, Visual C++, Application Frameworks Fundamentals and MFC Libraries View Class. Introduction, MFC, ATL and WFC, Windows Programming Model, Components, Application Framework, MFC Library, Event Handling, Mapping Modes and Scrolling Views, Graphic Device Interface, Colors and Fonts, Modal Dialog and Windows Common Control, Modeless Dialog and Windows Common Dialog, ActiveX Controls and Internet Explorer Common Controls, Win32 Memory Management, Bitmaps, Message Processing and Multithreaded Programming.

Unit-2 : Document View Architecture : Menus, Keyboard Accelerators, Rich Edit Control and Property Sheets, Tool bar and Status Bars, Reusable Frame Window Base Class, Separating the Documents from its View, Reading and Writing Documents- SDI applications, MDI applications, Printing and Print Preview, Splitter Windows and Multiple Views, Context-Sensitive Help, DLL's, MFC Programs without Documents or View Classes

Unit-3 : Active X: COM, Automation and OLE : Component Object Model, Automation, Uniform Data Transfer- Clipboard Transfer and OLE, Drag and Drop, Structured Storage, OLE Embedded Components and Containers, Introducing the Active Template Library, ATL and ActiveX Controls.

Unit-4 : Database Management: Database Management with Microsoft ODBC, Database Management with Microsoft Data Access Objects, OLE DB Templates. Programming for the Internet: TCP/IP, Winsock, WinInet, Programming the Microsoft Internet Information Server, ActiveX document Servers and the Internet, Introducing the Dynamic HTML, Visual C++ for Windows CE.

186 - Theory of Computation and Compiler Construction

Unit-1 : Finite Automation and Regular Expression : Finite State systems, Basic Definitions, Non - deterministic finite Automata, Finite Automata with moves, Regular Expressions, Two way finite automata, Finite automata with output, Application on Finite Automata. Properties of Regular Sets : The pumping lemma for Regular Sets, Close properties of Regular sets, Decision Algorithms for Regular Sets. Context Free Grammars : Motivation and Introduction, Context Free Grammar, Derivation Tree, Simplification of context Free Grammars, Chomsky Normal form, Greibach normal form, The existence of inherently ambiguous context free languages. Properties of Context free languages : The pumping lemma for CFL's , Closure properties of CFL's, Decision Algorithm for CFL's

Unit-2 : Push Down Automata : Informal description, Definitions, Push – Down Automata & Context free languages. Turing Machine : Introduction, The Turing Machine Model, Computable languages and functions , Techniques Turing Machine construction, Modification of Turing Machines, Church's Hypothesis, Turing Machine as enumerators, Restricted Turing Machine equivalent to the basic model. Undecidability : Problems, properties of recursive and recursively enumerable problem, Turing Machine and undecidable problem, Rice theorem, Tool for proving CFL undecidable, Greibach's Theorem. The Chomsky : Regular Grammars, Unrestricted Grammars, Context – Sensitive languages, Relation between classes of languages.


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Unit-3 : Introduction to Compilers : Compilers and translators, need, the structure of a compiler, Lexical Analysis, Syntax analysis, Intermediate code Generation, Optimization, Code Generation, Book keeping, Error Handling, Compiler writing tools. Basic parsing Techniques: Parsers, Shift-reduce parsing, Operator precedence parsing, Top-down parsing, predictive parsers, automatic construction of efficient parsers : LR parsers the canonical collection of LR (0) items, constructing SLR parsing tables, constructing LALR parsing tables, Ambiguous grammar.

Unit-4 : Syntax directed translation : syntax directed translation schemes, implementation, intermediate code, postfix notation, parse tree and syntax trees, tree- address code, quadruple, triple, translation of Symbol Table: Data Structure, Representation of Scope Information, Code Optimization: The principal source optimization, Loop optimization, The DAG Representation of basic blocks, Value number and algebraic laws, Global data-flow analysis. Code Generation : Object Programmers Problems in code generation, A machine model, a simple code generator, Register Allocation and assignment, Code Generation from DAG's Peephole Optimization.

187 - Computer Architecture and Organization

Unit-1 : Principle of computer design : Software, hardware interaction, layers in computer architecture, central processing and machine language instruction, addressing modes, instruction types, instruction set selection, instruction and execution cycle.

Unit-2 : Control Unit : Data path and control path design, microprogramming v/s hardwired control, pipelining in CPU design, RISC v/s CISC, superscalar processors.

Unit-3 : Memory subsystem : Storage technologies, memory array organization, memory hierarchy, interleaving , cache memory and virtual memory including architectural aids to implement these.

Unit-4 : Input/ Output Processing : Bus Interface, Data transfer techniques, I/O interrupts and channels,. Performance evaluation : SPECmarks , Transaction Processing Benchmarks.

188 - Computer Graphics

Unit-1 : Introduction of computer Graphics and its applications, Overview of Graphics systems, Video display devices, Raster scan display, Raster scan systems, video controller, Raster scan display processor, Random scan display, random scan systems, color CRT monitor, Flat panel display, Interactive input devices, Logical classification of input devices, Keyboard, mouse, Trackball and spaceball, Joysticks, Image scanner, Light pens, Graphics software, Coordinates representations, Graphics functions.

Unit-2 : Line drawing algorithms, DDA, Bresenham's, Circle generating, Mid-point circle algorithm, Ellipse generating, Polygon , Scan-line polygon fill, Boundary fill.

Unit-3 : Basic transformation's, Translation, Rotation, Scaling, Matrix representation's & homogeneous coordinates, Composite transformation's, Reflection, Two dimensional viewing, Two dimensional clipping, Line, Polygon, Curve, Text. 3D-transformation, Projection, Viewing, Clipping. Spline representation, Cubic spline, Bezier curve, Bezier surfaces, Beta spline, B-spline surfaces, Bspline curve, Hidden surfaces, Hidden lines, Z-buffer.

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Unit-4 : Fractal's geometry Fractal generation procedure, Classification of Fractal, Fractal dimension, Fractal construction methods. Color models, XYZ, RGB, YIQ, CMY & HSV, Shading algorithms, Shading model, Illumination model, Gouraud shading, Phong shading.

189 - Practical 3 based on theory paper-5 and 6

190 - Practical 4 based on theory

191 - Seminar 2

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Semester-III

192 - Data Communication and Network

Unit-1 : Introduction: Network structure and architectures and services OSI reference model. The Physical Layer: theoretical basis for data communication, transmission media. Analog Transmission, Digital Transmission, Transmission and Switching, ISDN. The Data Link Layer: Design issues, Error detection and correction, Elementary data link protocols, sliding window protocol, protocols performance, protocols specification and verification. Examples of the Data link layer. Network Layer: Design issues, routing algorithms, Congestion control algorithms, Internet working, Examples of the network layer.

Unit-2 : The Transport Layer: Design issues, Connection Management. The session layer: Design issues and remote procedure call. The Presentation Layer: Design issues, data compression techniques, cryptography. The Application Layer: Design issues, file transfer, access and management, virtual terminals.

Unit-3 : Network Security Fundamentals: Introduction, security Vulnerabilities and Threats, Classification of Security Services. Cryptography: Encryption principles, Conventional Encryption DES, IDEA, Algorithms, CBC, Location of Encryption Devices key Distribution.

Unit-4 : Message Digests and Checksums, Message Authentication, Message Digests, Hash Functions and SHA, CRCs. Public key Systems: RSA Diffie-Hellman, DSS, Key Management. Intruders: Intrusion Techniques, Intrusion Detection, Authentication, Password- Based Authentication, Address-Based Authentication, Certificates, Authentication Services, Email Security, Firewalls, Design Principles, Packet Filtering, Access Control, Trusted Systems, Monitoring and Management.

193 - Software Engineering

Unit-1 : Introduction to Software Engineering : The evolving role of software, Changing Nature of Software, Software myths. A Generic view of process : Software engineering- A layered technology, a process framework, The Capability Maturity Model Integration (CMMI), Process patterns, process assessment, personal and team process models. Process models : The waterfall model, Incremental process models, Evolutionary process models, The Unified process. Software Requirements : Functional and non-functional requirements, User requirements, System requirements, Interface specification, the software requirements document.

Unit-2 : Requirements engineering process : Feasibility studies, Requirements elicitation and analysis, Requirements validation, Requirements management. System models : Context Models, Behavioral models, Data models, Object models, structured methods. Modeling with UML . Design Engineering : Design process and Design quality, Design concepts, the design model. Creating an architectural design : Software architecture, Data design, Architectural styles and patterns, Architectural Design.

Unit-3 : Object-Oriented Design : Objects and object classes, An Object-Oriented design process, Design evolution. Performing User interface design : Golden rules, User interface analysis and design, interface analysis, interface design steps, Design evaluation. Testing Strategies : A strategic approach to software testing, test strategies for conventional software, Black-Box and White-Box testing, Validation testing, System testing, the art of Debugging. Product metrics : Software Quality, Metrics


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for Analysis Model, Metrics for Design Model, Metrics for source code, Metrics for testing, Metrics for maintenance.

Unit-4 : Metrics for Process and Products : Software Measurement, Metrics for software quality. Risk management : Reactive vs. Proactive Risk strategies, software risks, Risk identification, Risk projection, Risk refinement, RMMM, RMMM Plan. Quality Management : Quality concepts, Software quality assurance, Software Reviews, Formal technical reviews, Statistical Software quality Assurance, Software reliability, The ISO 9000 quality standards.

194 - Neural Network

Unit-1 : Introduction: Feedforward Neural Networks: Artificial Neurons, Neural Networks and Architectures: Neuron Abstraction, Neuron Signal Functions, Mathematical Preliminaries, Neural Networks Defined, Architectures: Feed forward and Feedback, Salient Properties and Application Domains of Neural Network Geometry of Binary Threshold Neurons and Their Network: Patterns Recognition and Data Classification, Convex Sets, Convex Hulls and Linear Separability, Space of Boolean Functions, Binary Neurons are pattern Dichotomizes, Non-linearly separable Problems, Capacity of a simple Threshold Logic Neuron, Revisiting the XOR Problem, Multilayer Networks.

Unit-2 : Supervised Learning I: Perceptrons and LMS: Learning and Memory, From Synapses to Behaviour: The Case of Aplysia, Learning Algorithms, Error Correction and Gradient Descent Rules, The Learning Objective for TLNs, Pattern space and Weight Space, Perceptron Learning Algorithm, Perceptron Convergence Theorem, Perceptron learning and Non-separable Sets, Handling Linearly Non-Separable sets, α -Least Mean Square Learning, MSE Error Surface and its Geometry, Steepest Descent Search with Exact Gradient Information, λ -LMS: Approximate Gradient Descent, Application of LMS to Noise Cancellation

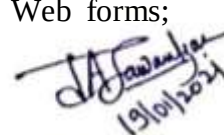
Unit-3 : Supervised Learning II: Backpropagation and Beyond: Multilayered Network Architectures, Backpropagation Learning Algorithm, Structure Growing Algorithms, Fast Relatives of Backpropagation, Universal Function Approximation and Neural Networks, Applications of Feedforward Neural Networks, Reinforcement Learning

Unit-4 : Neural Networks: A Statistical Pattern Recognition Perspective: Introduction, Bayes Theorem, Classification Decisions With Bayes Theorem, Probabilistic Interpretation Of A Neuron Discriminant Function, Interpreting Neuron Signals As Probabilities, Multilayered Networks, Error Functions And Posterior Probabilities, Error Functions For Classification Problems Generalization: Support Vector Machines and Radial Basis Function Networks: Learning from Examples and Generalization, Statistical Learning Theory Briefer, Support Vector Machines, Radial Basis Function Networks, Regularization Theory Route to RRBFNs, Generalized Radial Basis Function Network, Learning In RRBFNs, Image Classification Application, Other Models for Valid Generalization

195 - ASP.Net

Unit-1 : ASP.NET programming model: Introduction, event driven programming over http, http protocol, structure of ASP.NET page, ASP.NET component model, ASP.NET Provider model, Anatomy of ASP.Net Page: Invoking page, Page class, Page Life cycle. ASP.NET Core Server controls: Generalities of Server Controls, Properties, events and methods of Control class, HTML controls: Generalities of HTML controls, HTML Containers, HTML input controls.

Unit-2 : Web controls: Generalities of Web Control, core web control, misc web control, Validation controls: Generalities of validation controls, Gallery of controls, Programming with Web forms;


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HtmlFrom Class, Multiple forms, cross page postings, Page errors, Page Personalization. Ritch Page Composition: Working with master page, working with themes, working with wizards, ADO.NET data Providers, Connecting to data sources: connection strings, connection pooling, Executing commands: ADO Data Readers, Data Adapters, working with transactions, procedures etc. Data container objects: Data sets, Data tables, Data Relations, Data binding models: expressions and components.

Unit-3 : Creating bindable grid of data: DataGrid Control, GridView control, Managing list of records: ListView control and Managing views of records: DetailView Control, FromView Control, Initialization of Application: HttpApplicationClass, Application module, methods and events of HttpApplication Class, The global.asax file, HttpContext Class, Server Object, HttpResponse Object, HttpRequest Object.

Unit-4 : ASP.NET state management: Application state, Session State: working with session state, customizing session state, view state of page. ASP.NET caching: Caching Application data, the Cache Class, ASP.NET Security: Using Form authentication, membership and role management API, Security related controls, AJAX Enabled web services: Web services as application specific services, remote call via web services,

196 - Practical I based on theory paper-1 and 2

197 - Practical II based on paper 3 and paper4

198 - Seminar 3


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Semester-IV

199 - Data Mining

Unit-1 : Introduction to Data Mining: Why Mine Data? Commercial Viewpoint, Scientific Viewpoint Motivation, Definitions, Origins of Data Mining, Data Mining Tasks, Classification, Clustering, Association Rule Discovery, Sequential Pattern Discovery, Regression, Challenges of Data Mining, Data Mining-Data: What is Data? Attribute Values, Measurement of Length, Types and Properties of Attributes, Discrete and Continuous Attributes, Types of data sets, Data Quality, Data Preprocessing, Aggregation, Sampling, Dimensionality Reduction, Feature subset selection, Feature creation, Discretization and Binarization, Attribute Transformation, Density.

Unit-2 : Data Mining: Exploring Data: Data Exploration Techniques, Summary Statistics, Frequency and Mode, Percentiles, Measures of Location: Mean and Median, Measures of Spread: Range and Variance, Visualization, Representation, Arrangement, Selection, Visualization Techniques: Histograms, , Box Plots, Scatter Plots, Contour Plots, Matrix Plots, Parallel Coordinates, Other Visualization Techniques, OLAP : OLAP Operations, Data Mining Classification: Basic Concepts, Decision Trees, and Model Evaluation: Classification: Definition, Classification Techniques, Tree Induction, Measures of Node Impurity, Practical Issues of Classification, ROC curve, Confidence Interval for Accuracy, Comparing Performance of Two Models, Comparing Performance of Two Algorithms.

Unit-3 : Data Mining Classification: Alternative Techniques: Rule-Based Classifier, Rule Ordering Schemes, Building Classification Rules, Instance-Based Classifiers, Nearest Neighbor Classifiers, Bayes Classifier, Naive Bayes Classifier, Artificial Neural Networks (ANN), Support Vector Machines. Data Mining Association Analysis: Basic Concepts and Algorithms: Association Rule Mining, Frequent Itemset Generation, Association Rule Discovery : Hash tree, Factors Affecting Complexity, Maximal Frequent Horrible Closed Itemset, Alternative Methods for Frequent Itemset Generation, FPgrowth Algorithm, Tree Projection, Rule Generation, Pattern Evaluation, Statistical Independence, Properties of A Good Measure, Support-based Pruning, Subjective Interestingness Measure.

Unit-4 : Data Mining Cluster Analysis: Basic Concepts and Algorithms: Applications of Cluster Analysis, Types of Clusters, Clustering Algorithms: 'K-means and its variants, Hierarchical clustering, Density based clustering. Graph-Based Clustering, Limitations of Current Merging Schemes, Characteristics of Spatial Data Sets, Shared Near Neighbor Approach, ROCK (RObust Clustering using linKs), Jarvis Patrick Clustering, SNN Clustering Algorithm, Data Mining Anomaly Detection: Anomaly jOutlier Detection, Importance, Anomaly Detection Schemes, Density-based: LOF approach

200 - Artificial Intelligence & Expert System

Unit-1 : AI problems, AI Techniques, Tic-tac-toe, Question Answering, Problem as a state space search, A water jug problem, production system, Control strategies, Heuristic Search, Problem Characteristics, Production system characteristics, Design of search programs AI Search techniques :- Depth-first, Breadth-first search, Generate-and-test, Hill climbing, Best-first search, Constraint satisfaction, Mean-ends-analysis, A* Algorithm, AO* algorithm.

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Unit-2 : Knowledge Representation:- Representations and mappings, Knowledge Representations, Issues in Knowledge Representation, Predicate Logic:- Representing Instance and Isa Relationships, Computable Functions and predicates, Resolution, Natural Deduction, Logic programming, Forward versus Backward Reasoning, Matching, Control knowledge, Expert System.

Unit-3 : Games playing : Minimax search procedure , adding alpha-beta cutoffs, additional refinements, Planning :- Component of a planning system, Goal task planning, Nonlinear planning, Hierarchical Planning.

Unit-4 : Understanding, Understanding as Constraint satisfaction, Natural Language Processing, Syntactic Processing, Unification grammars, Semantic Analysis, Introduction to pattern recognition, Parallel and Distributed AI, Psychological Modeling, Distributed Reasoning Systems,

201 - Design and Analysis of Algorithm

Unit-1 : Elementary Algorithmics: Introduction- Problems and Instances- The Efficiency of algorithms- Average and worst case Analysis. Asymptotic Notation: A notation for the order of – Other asymptotic notationConditional asymptotic notation- Asymptotic notation with several parameters- Operations on asymptotic notation. Analysis of Algorithms: Introduction- Analyzing control structures- Average case analysis- Amortized Analysis- Solving recurrences.

Unit-2 : Greedy Algorithms: Making change- General Characteristics of Greedy algorithms- Minimum spanning trees and shortest paths- Knapsack Problems- Scheduling. Divide and Conquer: Introduction- Multiplying large numbers- The general template- binary searchsorting- Finding the median- Matrix multiplication- Introduction to cryptography.

Unit-3 : Dynamic Programming: The Principle of Optimality- making change the knapsack problem- shortest paths- Chained matrix multiplication- approaches using recursion- Memory functions.

Unit-4 : Back tracking & Brach Bound: Traversing trees- Depth first search of directed and ndirected graphBreadth first search- Back tracking- Branch and bound- The minimax principle, Introduction to NPCompleteness; Classes P and NP- Polynomial reductions- NP- Complete Problems NP- Hard problemsNon- Deterministic algorithms.

202 - Embedded System

Unit-1 : Introduction to Embedded Systems: Embedded Systems, Processor Embedded into a System, Embedded Hardware Units and Devices in a System, Embedded Software in a System, Examples of Embedded Systems, Embedded System-on-chip (Soc) and Use of VLSI Circuit Design Technology, Complex Systems Design and Processors, Design Process in Embedded System, Formalization of System Design, Design Process and Design Examples, Classification of Embedded Systems, Skills Required for an Embedded System Designer 8051 and Advanced Processor Architectures, Memory Organization and Realworld Interfacing: 8051 architecture, Real World Interfacing, Introduction to Advanced Architectures, Processor and Memory Organization,Instruction-Level Parallelism, Performance Metrics,Memory-Types, Memory-Maps and Addresses, Processor Selection, Memory Selection, Devices and Communication Buses for Devices Network :Types and Examples, Serial Communication Devices, Parallel Device Ports, Sophisticated Interfacing Features in Device Ports, Wireless Devices, Timer and Counting Devices,

Watchdog Timer, Real Time Clock, Networked Embedded Systems, Serial Bus Communication Protocols, Parallel Bus Device Protocols-Parallel Communication Network Using ISA, PCI, PCI-X


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and Advanced Buses, Internet Enabled Systems-Network Protocols, Wireless and Mobile System Protocols

Unit-2 : Device Drivers and Interrupts Service Mechanism: Programmed-I/O Busy-wait Approach without Interrupt Service Mechanism, ISR Concept, Interrupt Sources, Interrupt Servicing (Handling) Mechanism, Multiple Interrupts, Context and the Periods for Context Switching, Interrupt Latency and Deadline, Classification of Processors Interrupt Service Mechanism from Context-Saving Angle, Direct Memory Access, Device Driver Programming, Programming Concepts and Embedded Programming in C, C++ and Java: Software Programming in Assembly Language (ALP) and in High-Level Language 'C' 235 , C Functions, Program Elements: Data Types, Data Structures, Modifiers, Statements, Loops and Pointers, Object-Oriented Programming, Embedded Programming in C++, Embedded Programming in Java, Program Modeling Concepts: Program Models, DFG Models, State Machine Programming Models for Event-controlled Program Flow, Modeling of Multiprocessor Systems, UML Modelling

Unit-3 : Interprocess Communication and Synchronization of Processes, Threads and Tasks: Multiple Processes in an Application, Multiple Threads in an Application, Tasks, Task States, Task and Data, Clearcut Distinction between Functions, ISRS and Tasks by their Characteristics, Concept of Semaphores, Shared Data, Interprocess Communication, Signal Function, Semaphore Functions, Message Queue Functions, Mailbox Functions, Pipe Functions, Socket Functions, RPC Functions, Real Time Operating Systems : OS Services, Process Management, Timer Functions, Event Functions, 28 Memory Management, Device, File and 10 Subsystems Management, Interrupt Routines in RTOS Environment and Handling of Interrupt Source Calls, Real-time Operating Systems, Basic Design Using an RTOS, Rtos Task Scheduling Models, Interrupt Latency and Response of the Tasks as Performance Metrics, OS Security Issues,

Unit-4 : Real time Operating System ProgrammingI: MicrodOS-II and VxWorks, Basic Functions and Types of RTOSes, RTOS mCOS-II, RTOS VxWorks, Realtime Operating System ProgrammingII: Windows CE, OSEK and Real-time Linux Functions, Windows CE, OSEK, Linux 2.6.x and RTLinux, Design Examples and Case Studies of Program Modeling and Programming with RTOS I:Case Study of Embedded System Design and Coding for an Automatic, Chocolate Vending Machine (ACYM) Using Mucos RTOS, Case Study of Digital Camera Hardware and Software Architecture, Case Study of Coding for Sending Application Layer Byte Streams on a TCPIIP Network Using RTOS Vxworks Design Examples and Case Studies of Program Modeling and Programming with RTOS 2: Case Study of Communication Between Orchestra Robots, Embedded Systems in Automobile, Case Study of an Embedded System for an Adaptive Cruise Control (ACC) System in a Car, Case Study of an Embedded System for a Smart Card, Case Study of a Mobile Phone Software for Key Inputs, Embedded Software Development Process and Tools: Introduction to Embedded Software Development Process and Tools, Host and Target Machines, Linking and Locating Software, Getting Embedded Software into the Target System, Issues in Hardware-Software Design and Co-design, Testing, Simulation and Debugging Techniques and Tools: Testing on Host Machine: Simulators, Laboratory Tools

203 - Practical based on theory paper-1 to 4

204 – Project

205 - Seminar

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