

Syllabus of courses offered during 2019 – 2020

J. J. J.
19/01/2021

2019-20

B.Com. – First Year

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.

Reference Books :

- S. N. Maheshwari :- Financial Accounting – Vikas Publishing House, New Delhi.
- Gupta R. L. – Advanced Financial Accounting – S. Chand & Sons.
- Kumar, Anil S. – Advanced Financial Accounting – Himalaya Publication House.
- Shukla and Grewal : Advanced Accounts (S. Chand & Ltd. New Delhi).
- Jain and Narang : Advanced Accounts (Kalyani Publishers, Ludhiana).
- Sr. K. Paul : Accountancy, Volume –I and II (New Central Book Agency, Kolkata).
- R. K..Lele and Jawaharlal : Accounting Theory (Himalaya Publishers).
- M. A. Arulnandam :- Advance Accounting – Himalay Publication
- Gulhane, Navghare And Others- Financial Accounting –I, Sheth Publishers Pvt. Ltd. Mumbai.
- Prof. Pradeep Wath, Dr. R. D. Mehta, Dr. Dilip Gotmare :- Financial Accounting– Payal Pakashan.
- Advanced Accounts (volume –I), M. C. Shukla, T.S. Grewal, Revised by S. C. Gupta. S, Chand Publishing.

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.

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.

Suggested Books:

1. Jain, Khushpat S : Business Organisation,Mumbai
2. C.P Bose: Business Organisation & Management
3. Sekhri, Arun : Organisation, MUMBAI, Himalaya Publishing House, 2014
4. P.C.Jain: Government and business policy,Galgotia Publishing Com.New Delhi
5. Gulhane, Chopade Choudhary- Business Organization, Sheth Publishers Pvt. Ltd. Mumbai.
6. 'kekZ] ,l-,y- % O;kolkf;d laxBu] jes'k cwd fMiks] ubZ fnYyh
7. oekZ] ;ksxsUnzizlkn % O;kolkf;d laxBu izca/k ,oa iz'kklu] ,l-pkUn ,aM da-
8. Dr. A. Shende, Dr. M Dixit& Dr. D. Mohture, Business Organization, Anuradha Prakashan Nagpur.

3: Company Law

Level of Knowledge: - Basic Conceptual Knowledge.

Objective: To make aware the students with basic concept of company law

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

- (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 debt capital, 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.

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.

- (iv) Concept of Small Shareholders Director, Women Director, Resident Director and Independent Director, Auditor – Meaning, Appointment and Removal

Reference Books:

- Company Law By Ashok K. Bagrial:, Vikas Publication House
- Company Law And Practice, Ratan Nolakha: Vikas Publication House
- Business Law Including Company Law, Gulshan, S S and Kapoor, G K , New Age International (P) Ltd., Publishers.
- Company Law - A comprehensive Textbook on New Companies Act 2013 , Kapoor G.K. and Dhamija Sanjay: Tazman Publication
- Company Law & Secretaria lPractice- Appannaian Reddy, Prabhudev, Himalaya Publishing House
- Farooq Haque Company Law., Sheth Publishers Pvt. Ltd. Mumbai
- Company Law Dr. A . Shende, Dr. R. Ingole, Anuradha Prakashan, Nagpur
- Company Law and Secretarial Practice- Dr. R.K. Nelakha, Ramesh Book Depot, Jaipur, New Delhi.
- Secretarial Practice & Company Law- Arunkumar, Rachana Sharma- Atlantic Publishers and Distributors
- A Text Book of Company Law & Corporate Law) P.P.S.Gogna, S. Chand Publishing.

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.

Books Recommended:

1. Business Economics ,V.G. Mankar, Himalaya Publication House.
2. Business Economics, H.L.Ahuja, S.Chand Publishing
3. Business Economics, Dr. A. shende, Dr. D. Mohture, Dr. Dixit, Dr. R. Gan, Anuradha Prakashan Nagpur
4. Micro Economics, P.N.Chopra, Kalyani Publishers.
5. Micro Economics, D.D.Chaturvedi, Galgotia Publishing Company.
6. Principles of Economics, D.M.Mithani, Himalaya Publishing House.
7. Advance Micro Economic Theory, M.Maria John Kennedy, Himalaya Publishing House.
8. Business Economics, Rashi Arora, Sheth Publishers, Mumbai
9. Business Economics, Dr. Samudra, Sai Jyoti Prakashan

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:

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

Prescribed Text for UNITS I, II & III: Swan and Pearls (Raghav Publishers)

Reference Books :

For UNIT IV(A) (Grammar /Vocabulary items)

1. Learner's English Grammar & Composition by Dr. N.D.V.Prasada Rao (S.Chand)
For Unit IV (B)
2. Business Correspondence and Report Writing – R.C.Sharma & Krishna Mohan
(Tata McGraw-Hill)
3. Developing Communication Skills – Krishna Mohan & Meera Banerji (Macmillan)

Semester - I

6- 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)

Reference books

1. Macmillan Foundation English - R.K. Dwivedi, A. Kumar (**for Unit IV**)
2. Developing Communication Skills -- Krishna Mohan & Meera Banerji (Macmillan Publishers) (**for the topic of ‘Social Correspondence under Unit III**)
3. Write Right – Sarita Manuja (Macmillan) (**For the topic ‘Writing Classified Advertisements’ given under Unit III**)

Semester - I

7- Marathi

Syllabus

ISS : B.COM. IST SEM.

Subject : MARATHI

भाषा दर्शन भाग एक

Unit	Particulars	From	To
1.	समकालीन राष्ट्रीय, सामाजिक समस्यावर आधारित निबंध	(16)	गुण
2.	गद्य विभाग		
	1) लोकशाहीचे भवितव्य - डॉ. बाबासाहेब आंबेडकर	(28)	गुण
	2) नौका - पु. भा. भावे		
	3) अस्पृश्यांचा आधारवड - शिवाजी सावंत		
	4) बेगड - योगीराज बाळमारे		
	5) उमा - वि. स. जोग		
3.	पद्य विभाग	(28)	गुण
	1) ज्ञानेश्वरांच्या विराण्या - शंत ज्ञानेश्वर		
	2) मन - बहिणाबाई चौधरी		
	3) गणपतवाणी - बा. सी. मर्देकर		
	4) गिरणीची लावणी - नारायण चुर्वे		
	5) माडली झुकेले बेट - सुधाकर गायधानी		
4.	व्यावहारिक मराठी	(08)	गुण
	1) पत्रलेखन		
	2) इतिवृत्त लेखन		
		लेखी परीक्षा - 80	
		अंतर्गत मूल्यांकन - 20	
		100	

Semester - I

8- Hindi

Syllabus

Class : B.Com I Year I sem

Subject : HINDI

Unit	Particulars
Unit - 1	निबंध
Unit - 2	गद्य विभाग - पाठ्यपुस्तक साहित्य वीथिका
1)	गणेशप (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, वींवादिनी वर दे । सूर्यकांत त्रिपाठी 'निराला'
5)	हिमाद्रि तुंग शृंग से जय शंकर प्रसाद

Semester - I Hindi Continued

Syllabus

Class : B.Com I Year I Sem

Subject : HINDI

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 हैं सुख नाही ।	
3)	जहाँ सुमति वहाँ नाना सम्पति ।	
4)	कर्म बिना सिध्दान मिथ्या है।	
5)	नेत्रदान महादान	
6)	जो जैसा करता है वैसा भरता है ।	
7)	परिवर्तन ही गति है ।	
8)	साँच को आँच नाही ।	
9)	एकता में बल होता है ।	
10)	भय मनुष्य का सबसे बड़ा शत्रु है ।	

B.Com. – First Year
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)**

Reference Books:

- Fundamentals of statistics : D. V. Elhance & Veena Elhance
- Statistics : V. K. Kapoor – S. Chand & Sons
- Statistics : B. New Gupta – Sahitya Bhavan Agra
- Fundamentals of statistics and Computer, Dr. M. Datalkar & Mrs. Sindhu Ghate, Sai Jyoti Prakashan, Nagpur
- Business Statistics A Self Study Text Book, Dr. P. C. Tulsian & Bharat Jhunjhunwala, S. Chand Publishing
- Fundamental of Statistics : S. C. Gupta – Himalaya Publishing House
- Business Mathematics & Statistics : NEWK Nag & S.C. Chanda – Kalyani Publishers
- Gulhane, Chopade – Statistics and business mathematics, Sheth Publishers Pvt. Ltd. Mumbai
- Business Mathematics and Statistics- Dr. M. Datalkar & Mrs. S. Ghate, Sai Joyti Publication, Nagpur.
- Problem in statistics : Y. R. Mahajan - Pimplapure Publisher Nagpur

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 a 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.

Unit IV

Recent trends in management:

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

Suggested Books:

1. Bajaj: Management Processing and Organization, Excel Publications.
 2. Tripathy and Reddy – Principles of Management – Tata McGraw Hill.
 3. A. Pardhasaradhy & R. Satya Raju: Management Text and Cases, Prentice Hall of India.
- Gulhane, Chopade Choudhary- Business Management, Sheth Publishers Pvt. Ltd. Mumbai
- 4- lq/kk] th-,l- Jhekyh fot;% O;kofk;d izcaU/k ds fl/nkar] jes'k cwd fMisk]ubZ fnYyh
 - 5- 'kekZ] th-Mh-lwukuk] th-lh-% izcaU/k ds fl/nkar] jes'k cwd fMiks]ubZ fnYyh
 - 6- ns'keq[k] izHkkdj% O;olk; O;oLFkkiukph ewy rRos] fiaGkiwjs vaM da- ukxiqjs

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

Reference Books:

- Company Law, Ashok K. Bagriyal: Vikas Publication House
- Ratan Nolakha: Company Law And Practice, Vikas Publication House
- Gulshan, S S and Kapoor, G K: Business Law Including Company Law, New Age International (P) Ltd., Publishers
- Dr. Arvind shende, Dr. Asha Tiwari, Company Law & Secretarial Practice, Anuradha prakashan, Nagpur.
- Farooq Haque Secretarial Practice., Sheth Publishers Pvt. Ltd. Mumbai

- Kapoor G.K. and Dhamija Sanjay: Company Law -A comprehensive Textbook on New Companies Act 2013 , Tazman Publication
- Secretarial Practice & Company Law- Arunkumar, Rachana Sharma- Atlantic Publishers and Distributors
- Secretarial Practice, M. C. Kuchhal, S. Chand Publishing.

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.

Books Recommended:

1. Business Economics , V.G. Mankar, Himalaya Publication House
2. Modern Economics, H.L.Ahuja, S.Chand & Co Ltd.
3. Micro Economics P.N.Chopra, Kalyani Publishers.
4. Micro Economics, D.D.Chaturvedi, Galgotia Publishing Company.
5. Modern Economic Theory, K.K.Dewett, S.Chand & Co Ltd.
6. Business economics, Dr. Arvind Shende, Dr. R. Ingole, Dr. P. Kothiwale, Anuradha Prakashan, Nagpur
7. Managerial Economics,D.N.Dwivedi, Vikas Publishing House Pvt Ltd.
8. Managerial Economics-Theory & Applications, D.M.Mithani, Himalaya Publishing House.
9. Business Economics by Ms. V. Karkare, Mrs. S Ghate, Anuradha Prakashan Nagpur.
1. Business Economics, Rashmi Arora, Sheth Publishers, Mumbai

Semester-II

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

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]

Prescribed Textfor UNITS I, II & III: Swan and Pearls (Raghav Publishers)

Reference Books :

For UNIT IV (A) (Grammar /Vocabulary items)

1.Learner's English Grammar & Composition by Dr. N.D.V.Prasada Rao (S.Chand)

For Unit IV (B)

2. Business Correspondence and Report Writing – R.C.Sharma & Krishna Mohan
(Tata McGraw-Hill)

2 Developing Communication Skills – Krishna Mohan & Meera Banerji

14-Supplementary English

Semester - II

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
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

Prescribed Text- Zenith- An Anthology of Prose and Poetry (Raghav Publishers) For Unit I and II

Reference books

1. Macmillan Foundation English - R.K. Dwivedi, A. Kumar (**For Unit IV**)
2. Developing Communication Skills -- Krishna Mohan & Meera Banerji (Macmillan Publishers) (**For the topic ‘Social Correspondence’ under Unit III**)
3. Write Right by Sarita Manuja (Macmillan Publication) (**For the topic ‘Note Making’ under unit III**)

15-Hindi

Semester - II

राष्ट्रसंत तुकडोजी महाराज नागपुर विश्वविद्यालय, नागपुर वाणिज्य स्नातक अभ्यासक्रम विषय:- हिन्दी द्वितीय सत्र : Semester II समय:- तीन घंटे कुल अंक:- 100		
इकाई क्रमांक (units)	इकाईयां (units) का पाठ्यक्रम क्रमांशानुसार	अंक
इकाई 1 (unit-1)	जीवनी, वर्णनात्मक तथा सैद्धांतिक विषयों पर आधारित निबंध। (हिन्दी पाठ में से एक विषय पर - शब्द सीमा 200 तक)	20
इकाई 2 (unit-2)	गद्य विभाग:- पाठ्यपुस्तक:- "साहित्य बीधिका" 1) द्विवेकेश गुहाजी के सात ड्राई दिन - सस्तरण- एम.एल. शर्मा जोशी 2) पर्यावरण और हम - निरंज - राजीव मर्च 3) साइबर क्रायम - एकाकी - मधु धवन 4) रात के सतरंग - एकाकी - डॉ. रामकुमार वर्मा 5) इरमैक्टर पातापीन मौस पर - खग्य - हरिचंद्र परसाई	35
इकाई 3 (unit-3)	पद्य विभाग:- पाठ्यपुस्तक:- "साहित्य बीधिका" 1) तुकड़ों का कवि पार करो - सुमटाकुमारी मोहन 2) कलम और तस्वीर - रामधारीशिव टिन्कर 3) धूप गगनाली है मोदी की साड़ी पहने - जेदारनाथ अग्रवाल 4) बीस दिन कम जाने वाले - हरिचंद्रनाथ अग्रवाल 5) एक ही किताबिए प्रेमती रही - अरुण कपूर	35
इकाई 4 (unit-4)	अन्य पाठ्य सामग्री:- 1) तुलना और लोकोपमा - पाठ्यपुस्तक में सतरंग तुलना और लोकोपमा का अर्थ एवं वाक्य प्रयोग का अध्ययन अपेक्षित है। 2) कथं लोबधः - एकराज्य विनोबासाई, एकराज्य कर्तापीन वन, कार्यालय आपन, कार्यालय आदेश, परिपत्रक, कार्यकारी पत्र इत्यादि आदेश, नियुक्ति, शीमा, डेक, आपन, निविदा, परपुत्री, कार्य, निष्कर्ष, मुक्ति एवं सुधना वन आदेश वन इत्यादि सामग्री अध्ययन और अभ्यास के माध्यम से तैयार की जाये।	10

16-Marathi

Semester - II

Syllabus

Class : B. Com - IIND SEM

Subject : Marathi

Unit	Particulars	From	To	
2T8.2-विषय : मराठी				
सत्र दुसरे				
प्रश्न क्र.	घटक क्र.	अभ्यासक्रम	गुण	शेरा
१	१	आत्मवृत्तपर, वर्णनपर, विषयावर आधारित निबंध (चार पर्यायांपैकी एका विषयावर शब्द मर्यादा-४००)	16	
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 नवसमाजनिर्मितीचे प्रणेते: महात्मा ज्योतीबा फुले (गंगाधर पानतावणे) ४ भरती (वसंत बऱ्हाडपांडे) ५ महालूट (संदानंद देशमुख)	28	
३	३	पद्य विभाग : पाठ्य पुस्तक : भाषा दर्शन भाग एक १ तुकारामांचे अभंग (संत तुकाराम) २ प्रेमाचा गुलकंद (केशव कुमार) ३ पृथ्वीचे प्रेमगीत (कुसुमायज) ४ स्वप्न (येस) ५ दोन कामागारांच्या गोष्टी (लोकनाथ यशवंत)	28	
४	४	व्यावहारिक मराठी ३. मुलाखत तंत्र ४. म्हणी व वाकप्रचार	08	

B. Com. Second Year

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**)

The financial year ends on 31st March.

Reference Books:

- Corporate Accounting:-Maheshwari S N, VikasPublishing house Pvt. Ltd.
- Advanced Financial Accounting, Gupta R. L. ,S. Chand Publishing
- Advanced Accounts Shukla and Grewal : (S. Chand & Ltd. New Delhi)
- Advanced Accounts , Jain and Narang : (Kalyani Publishers, Ludhiana)
- Accountancy, Volume –I and II ,Sr. K. Paul : (New Central Book Agency,Kolkata)
- Accounting Theory, R. K..Lele and Jawaharlal : (Himalaya Publishers)
- Accounting Theory, Dr. L. S. Porwal : (Tata McGraw Hill)
- Corporate Accounting Dr. S. N. Maheshwari : (Viakas Publishing House Pvt. Lit. New Heldi)
- Advanced Financial Accounting ,Dr. Ashok Sehgal& Dr. Deepak Sehgal : (Taxmann, New Delhi)
- Advanced Financial Accointing Dr. R. D. Mehta, Prof. P. Wath & Dr. D. C. Gotmare ,Payal Prakashan, Nagpur.

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, 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.

Suggested Books:

1. A guide to business correspondence- Kapoor A- S Chand & Co
- 2.. Urmila Rai & S.M. Rai, Business Communication, Himalya Publishers,
3. Lesikar I Flatley, Basic Business Communication, Tata McGraw Hill.
4. Microsoft office-2000/2007- Gini courter, annelte Marquis BPB
- 5.Business Communication, Dr. Arvind Shende, Dr. Asha Tiwari, Anuradha Prakashan, Nagpur.
5. Business Communication , Pooja Khanna, S. Chand Publishing.
5. dwekj] fojsUnz % O;kolkf;d lapkj] dY;k.kh ifCy'kIZ]ubZ fnYyh
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19–: Business Law

Level of Knowledge: Basic Conceptual Knowledge

Objective: To make students aware about various Laws relating to Business
[with amendments up to June 2016 in respective Acts]

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
- (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

Reference Books:

- Gulshan, S S and Kapoor, G K: Business Law Including Company Law , New Age International (P) Ltd., Publishers
- M.C. Kuchhal and Vivek Kuchhal : Business Law, Vikas Publishing House, New Delhi
- V.S. Datey: Business and Corporate Laws, Taxman, New Delhi
- N.D. Kapoor: Mercantile Law, Sultan Chand & Sons, Educational Publishers, New Delhi.
- Dr. V. K. Jain: Mercantile Law, Seth Publications, Nagpur.
- Business Law R.S. N. Pillai& V. Bhagavathi, S. Chand Publishing.
- Sen & Mitra: Cinnercuak Kawn, The World Press Pvt. Ltd., Kolkata.
- C.K. Kapoor: Lectures on Business and Corporate Laws, Vidya Sadan, Delhi.
- K.R. Bulchandani, Business Law Himalaya P. House, Mumbai-2006.
- Business Law, Dr. Arvind shende, Dr. Vijay Upgade, Anuradh Prakashan, Nagpur.

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 & Cansons. Types of Taxation- Proportional, Progressive and Regressive Taxation System .Direct and Indirect Taxes- Merits & Demerits.

Books Recommended:

1. Monetary Economics, RR Paul, Kalyani Publishers.
2. Money, Banking, Trade & Public Finance, M.V.Vaish, New Age International Pvt.Ltd.
3. Money, Banking and International Trade, K.P.M. Sundaram , Sultan Chand, New Delhi.
4. Public Finance, Tyagi , Jai Prakash Nath Publishers.
5. Money and Financial System P.K. Deshmukh, Phadke Prakashan.
6. Monetary Economics, Rashi Arora, Sheth Publishers, Mumbai
7. Modern Macroeconomics(Theory & Policy), B.N.Ghosh, Ane Books Pvt Ltd, 2nd Edition, 2012.
8. Macro Economics, D.D.Chaturvedi, Galgotia Publishing Company, 1999.

Semester-III

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

Prescribed Text :*Blossoms* (Raghav Publishers)

Reference Books (For Sem III & IV) :

For Unit III – Learner’s English Grammar and Composition – N.D.V.Prasada Rao
(S.Chand)

For Unit IV – 1. Business Correspondence and Report Writing – R.C.Sharma & Krishna Mohan (Tata

2.Developing Communication Skills – Krishna Mohan & Meera Banerji (Macmillan) (Tata McGraw-Hill)

22:Supplementary English

Semester - III

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

(B) 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

(Students to give the appropriate business term for the definition/ explanation given)

Prescribed Text- *Reflections*- A Supplementary English Coursebook for Undergraduates (Raghav Publishers)(**for unit I & II**)

Reference Books-

1. Professional Communication - Roshan Lal Raina, Iftikhar Alam, Falzia Siddiqui. (Himalaya Publishing House)(**For the topic 'Report Writing' under unit III**)

2. Macmillan Foundation English - R.K. Dwivedi, A. Kumar(**for the topic 'Expansion of an Idea' under Unit III**)
3. Business Correspondence & Report Writing- A practical approach to Business & Technical Communication- R.C. Sharma & Krishna Mohan Fourth Edition (McGraw Hill) (**for the topic ' Business Terms' under Unit IV**)

23 - Marathi

Semester - III

Syllabus

Class : B.COM IIIRD SEM.

Subject : MARATHI

Unit	Particulars	From	To
1.	पर्यावरण, उसाद्युनिकृतज्ञानविज्ञान आणि प्रसार माध्यमे ह्या विषयावर आधारित निबंध	(16)	गुण
2.	गद्य विभाग १) दुखःक्रांत लेकी येणे - म्हाडभट २) माझे दत्तक वडील - चि. वि. जोशी ३) सांगाता - शंकरराव खरात ४) शेवटची माती - आनंद अ. यादव ५) जन्मसामान्यांच्या प्रबोधनाचे गतिचक्र - बा. ह. कल्याणकर	(28)	गुण
3.	पद्य विभाग १) संतवाणी - चोखामेळा सेना न्हावी, नरहरी सोनार २) लटपट लटपट तुझे चालणे - होनाजी वाळा ३) माझी कन्या - कवी बी. ४) आभाळाची आम्ही लेकरे - वसंत वापट ५) इथेच - मंगवंत मनोहर ६) जहर खाऊ नका - झानेश वाकडकर	(28)	गुण
4.	व्यावहारिक मराठी १) प्रसारमाध्यमांसाठी वृत्तलेखन २) कंपना विस्तार	(08)	गुण

24 - Hindi

Semester - III

Syllabus	
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 शेवडे
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'

Hindi

Semester III Continued

Syllabus		
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) क्रियाव्यक 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 ।	

B.Com. – Second Year 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

Suggested Books:

1. Personality Development –Transform yourself by Rajiv K Mishra.
2. Personality Development and Communication Skills – II by Dr.C.B.Gupta
3. Business Communication and Personality Development: Lessons for Paradigm Change in Personality by Biswajit Das and Ipseeta Satpathy.
4. Entrepreneurship development.

27:- Income Tax

Unit I: Introduction of Income Tax

- 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)**

Books Recommended :

Ahuja G. K. and Ravi Gupta :- Systematic Approach to Income and Central Sales tax, Bharat law house, New Delhi.

- Singhanian V. K. :- Direct taxes :- Law and Practice, Taxman's publication, Delhi.

- Jain K. C., Gour V. P., Narang D. B. :- Direct taxes Kalyani Publishers, Delhi.
- Datey V. S. :- Indirect taxes law and Practice, Taxman, New Delhi, customs and excise Law Time - various issues.
- Dr. V. Upgade and Shende Dr. A. K. Income Tax, Anuradha publication, Nagpur.

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.

Books Recommended:

1. Monetary Economics, RR Paul, Kalyani Publishers.
2. Money, Banking and International Trade, K.P.M. Sundaram , Sultan Chand, New Delhi.
3. Macroeconomics, Mankiw, N. Gregory, Macmillan Worth Publishers New York, Hampshire U.K.

4. Financial Institutions and Markets , Agrawal & Gupta, Kalyani Publishers.
5. Modern Banking ,Vaish, M.C, Oxford & IBH Publishing Co.,New Delhi
6. Money and Financial System P.K. Deshmukh, Phadke Prakashan.
7. Monetary Economics, Rashi Arora, Sheth Publishers, Mumbai

Semester-IV

29-Compulsory English

Unit –I PROSE ITEMS FROM “BLOSSOMS”

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

Prescribed Text : *Blossoms* (Raghav Publishers)

Reference Books (For Sem III & IV) :

For Unit III – Learner’s English Grammar and Composition – N.D.V.Prasada Rao
(S.Chand)

For Unit IV – 1. Business Correspondence and Report Writing – R.C.Sharma & Krishna Mohan (Tata

2.Developing Communication Skills – Krishna Mohan & Meera Banerji (Macmillan) (Tata McGraw-Hill)

30-Supplementary English

Semester - IV

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)

Prescribed Text:

Reflections - A Supplementary English Coursebook for Undergraduates

(Raghav Publishers) (For Unit I & II)

Reference Books-

1. Professional Communication - Roshan Lal Raina, Iftikhar Alam, Faizia Siddiqui (Himalaya Publishing House) (**For the topic ‘Report Writing’ under Unit III**)
2. English for Practical Purposes - Z.N. Patil, B.S. Valke, Ashok Thorat, Zeenat Merchant. (Macmillan) (**for the topic ‘Dialogue Writing’ under Unit III**)
3. Business Correspondence & Report Writing - A Practical Approach to Business & Technical Communication- R.C. Sharma & Krishna Mohan. (McGraw Hill Higher Education) (**for the topic ‘Business Terms’ under Unit IV**)

31-Hindi

Semester - IV

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 - उपेन्द्र नाथ अश्वक
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।

32-Marathi

Semester - IV

Syllabus

Class : B.Com IVth SEM

Subject : Marathi

Unit	Particulars	From	To
2 Assignments – 6+6 = 12 Marks			
Performance & Conduct – 4 Marks			
Attendance – 4 Marks			
TOTAL – 20 MARKS			
Theory Examination – 80 Marks			
Internal Assessment – 20 Marks			
Total: 100 Marks			

4T6.2-विषय : मराठी
सब चौथे

प्रश्न क्र.	घटक क्र.	अभ्यासक्रम	गुण	शेरा
१	१	साहित्यविषयक निबंध (चार पैकी एक; शब्द मर्यादा- ४००)	१६	
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 नारकीकर)	२४	
३	३	पद्य विभाग : पाठ्य पुस्तक : भाषा दर्शन भाग दोन १ दोन आरुडे (संत एकनाथ) २ विद्यार्थ्यांप्रत (केशवसुत) ३ आई (यशवंत) ४ विचार झाला पाहिजे (वसंत आबाजी डहाके) ५ आता आम्ही (वैभव सोनारकर)	२४	
४	४	व्यावहारिक मराठी १ स्मरणिका संपादन २ वाक्यप्रचार	०४	

B.Com. – Third Year
Semester-V
33- : Financial Accounting – IV

Unit – I

Amalgamation and Absorption of Companies

Introduction, Meaning, Characteristics, Objectives, Methods of purchase Consideration, Accounting Procedure of Amalgamation and Absorption.

(Theory & Numericals)

Unit – II

Reconstruction of Companies.

(Internal and External Reconstruction of Companies)

Meaning, Characteristics, Objectives, Difference between Reconstruction and Reorganization, Accounting Procedure of Reorganization and Reconstruction.

(Theory & Numericals)

Unit – III

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

Meaning, Main features of Double Accounting system, Objective of Double Accounting System, Difference between Double Accounting System and Single Accounting System, Merits, Demerits of Double Accounting System, Preparation of Final Accounts.

(Theory & Numericals)

Unit – IV

Valuation of Shares

Meaning, Need of Valuation of Shares, Factors affecting the value of shares, Methods of valuation of shares, Net Assets Method/Intrinsic Value Method, Yield Method.

(Theory & Numericals)

The Financial year ends on 31st March.

Books Recommended

- ☐ Gupta R. L. – Advanced Financial Accounting – S. Chand & Sons
- ☐ Kumar, Anil S. – Advanced Financial Accounting – Himalaya Publication House
- ☐ Shukla and Grewal : Advanced Accounts (S. Chand & Ltd. New Delhi)
- ☐ Jain and Narang : Advanced Accounts (Kalyani Publishers, Ludhiana)
- ☐ Sr. K. Paul : Accountancy, Volume –I and II (New Central Book Agency, Kolkata)
- ☐ R. K. Lele and Jawaharlal : Accounting Theory (Himalaya Publishers)
- ☐ Dr. L. S. Porwal : Accounting Theory (Tata McGraw Hill)
- ☐ Robert Anthony, D. F. Hawkins & K. A. Merchant : Accounting Text & Cases (Tata McGraw Hill)
- ☐ Dr. S. N. Maheshwari : Corporate Accounting (Viakas Publishing House Pvt. Ltd. New Delhi)
- ☐ Dr. Ashok Sehgal & Dr. Deepak Sehgal : Advanced Accounting (Taxmann, New Delhi)

34– :Cost Accounting

Unit – I

Cost Accounting :-

Meaning, Importance, Element of Cost, Cost-Absorption, Allocation of Overheads and Methods of costing, Difference between Cost Accounting and Financial Accounting. Simple Problems on Cost Sheet, Tender and Quotations. **(Theory & Numericals)**

Unit – II

Reconciliation of Profit /Loss shown by Cost and Financial Accounts:

Need for reconciliation of profit, reason for the difference between cost accounts and financial accounts, objectives of reconciliation statement, methods of preparation of reconciliation statement. **(Theory & Numericals)**

Unit – III

Process Cost Accounting :

Methods of costing, advantages and limitations of process costing, difference between job costing and process costing, Normal loss, Abnormal loss and Abnormal effectives, **(Theory & Numericals)**

Unit –IV

Contract Costing:

Features of contract costing, Types of contracts, Elements of contract cost, Nature of contract-completed contract, incomplete contract**(Theory & Numericals)**

- Books Recommended -

- ☐ S. N Maheshwari : Cost Accounting Theory and problems –Shri Mahavir Book Depot, New Delhi
- ☐ V.K. Saxena : Cost Accounting Text Book- Sultan Chand and Sons New Delhi
- ☐ M.C. Shukls – T.S. – Grewal, M.P. Gupta – Cost Accounting – S. Chand , NewDelhi
- ☐ R. S. N. Pallai, V Bhagavathi – Cost Accounting – S. Chand, New Delhi
- ☐ S. M. Shukla :- Cost Accounts (Hindi)
- ☐ Nigam R. S. – Advanced Cost Accounting , S. Chand & Company
- ☐ Jain S. P. – Advanced Cost Accounting – Kalyani Publication
- ☐ Gawada, J Made – Advanced Cost Accounting – Himalaya Publication House

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35-MANAGEMENT PROCESS

Objective: To equip the students with the knowledge of Management Process and inspire them to acquire required quality to face the managerial challenges.

Unit I:-

Management and Administration: - Management concept, levels of management, importance & functions of various levels of management. Administration- meaning, concept and functions of administration. Differences between Management and Administration.

Unit II:-

Managerial Development & Group Dynamics: - Need for developing managerial skills, skills required of a manager, classification of managerial skill, methods of developing skills of managers, group dynamics ,meaning & significance, types of groups, group formation development, group composition.

Unit III:-

Managerial Style: - Meaning and types of managerial styles X and Y Theory of Macgregor, factors' influencing managerial style, organization conflict- traditional and modern approaches to conflict, Management as a profession, significance of professional manager in current scenario,

Unit IV:-

Motivation: Definition, Meaning and concept of motivation, kinds of motivation and its importance, Theories of motivation- Maslow's theory of need hierarchy, Herzberg's theory of motivation, relationship between motivation & productivity.

Refefence:

1. Sherlekar”Management Value Oriented Holistic Approach” Himalaya Publishing.
2. Stephen Robbins : Organizational Behaviour, Prentice Hall of India.
3. Terry George: Principles of Management.
4. R.S.Dewedi “Human Relation and organizational behaviour.
5. Shejwalkar and Ghanekar : Principal and Practices of Management
6. Sharma, : Organisational behaviour
7. Saxena, Principal and Practices of Management

36: Indian Economy – I

Unit I:

Indian Economy & Planning

Economic Planning- Characteristics, Rationale, Features, Objectives of Economic Planning. Strategy of India's Development Plans. Objectives and Evaluation of 11th Plan. Objectives of 12th Plan. Resources allocation and financing of five years plans. Regional Planning in India- Aspects of regional planning , Conceptualization, Magnitude & Challenges. Achievements and shortcomings of India's Economics Planning. NITI Aayog-Aims, Objectives & Structure. From Economic Planning to NITI Aayog- Differences in the two Approaches.

Unit II:

Indian Economy & Policy

Concept of Economic Growth & 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 Sources, India's Energy Strategy. Transport System in India- Railways, Road, Water & Air Transport.

Unit III-

Population & Unemployment

India's Population: Size and Growth Trends, Causes of Population Explosion, Consequences on Economic Development, Remedies, Population Policy. Employment and Unemployment- Trends, Structure of Employment in India. Nature & Estimates of Unemployment. Urban & Rural Unemployment- Causes, Effect, Government Policy for Removing Unemployment.

Unit IV:

India's Public Finance

Public Expenditure-Classification, Role of Public Expenditure in India, Causes of increase in Public Expenditure. Public Revenue-Sources of Public Revenue in India. Public Debt- Meaning, Concept, Classification, Role, Problem and Remedies. India's Fiscal Deficit-Causes, Recent Policy Measures towards Controlling Fiscal Deficit.

Books Recommended:

1. Indian Economy, Datt & Sundharam, S Chand
2. The Indian Economy: Problems and Prospects, D .R.Gadgil.
3. Globalization And Indian Economy, R.Chaddha, Sumit Enterprises.
4. Indian Economy : Problems of Development and Planning, A.N.Agrawal, New Age International.
5. Indian Economy, Misra & Puri, Himalaya Publishing House Pvt. Ltd.
6. Government of India- Five Year Plans.
7. Government of India- Economy Survey.
8. Reserve Bank of India- Annual Reports on Currency and Finance.
9. Indian Economics, Rashi Arora, Mumbai

Elective Group–I

37 : Computerized Accounting

Unit-I

Introduction - 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.

Books Recommended:

- Accounting with Tally : K.K. Nadhani, BPB Publication.
- Tally. ERP 9 : Prof. C. M. Tembhurnekar & Dr. D. N. Khadse , Saijyoti publication , Nagpur.
- Tally Tutorail : K.K. Nadhani and A.K. Nadhani, BPB Publication.
- Advances Accounts Vol-I: M.c.Shukla, T.S.Grewal and S.G, Gupta, S. Chand & Company, Delhi.
- Accounting Principles: Anthony R.N. and J.S. Richard, Irwin Inc.
- Advanced Accountancy By P.C. Tulsian, Tata McGraw HILL Publication.
- Microsoft Office -2000/2007- Gini Courter, Annelte Marquis BPB.
- It Today (Encyclopaedia) - S.Jaiswal.
- Gulhane, Dr., Tiwari, Naidu Computerized Accounting, Sheth Publishers Pvt. Ltd. Mumbai
- A First Course In Computers - Sanjay Saxena.
- First Text Book On Information Technology – Srikant Patnaik.

Foundattion Group–I

38: Business Finance -I

Unit –I Business Finance-Meaning, Nature, Significance, Objects and Scope of Business Finance, Functions of Financial Executive in an Organization.

Sources of Business Finance-Long- Medium and Short Term Sources of Finance, Equity, Preference shares, Sweat equity shares, Shares with differential rights, debentures & Bonds .(Theory)

Unit – II Project Financing: Meaning, Steps involved in Project Financing, Appraisal of project, Means of Project finance, Aspect of Project Appraisal. (Theory)

Inventory Management : Need and Cost of Inventory , Economic Order Quantity under constant price and with varying price , Various inventory levels. (Theory & Numericals)

Leverages -Concept of Leverages, Operating and Financial Leverages. (Theory & Numericals)

Unit – III Management of Working Capital.

Meaning & Concept ,Need or Objects of Working Capital, types, and Advantages of Working Capital , disadvantages of Excessive Working Capital, Determinant's , assessment of Working Capital requirements(Theory & Numericals)

Unit – IV Debtors Management.: Introduction to Debtors Management, Cost of extending credits, Credit / discount policy, Effective cost of bill discounting . (Theory & Numericals)

Creditors Management: Introduction, Cost of Credit, Accruals / expenses payable as source of finance. (Theory & Numericals)

Venture Capital Financing: Meaning, Methods of Venture Financing, Problem areas facing the Venture Capital Industry. (Theory)

Books Recommended:

1. Financial Management Problems & Solutions :- Kishore Ravi M (Taxman Allied Service (p) Ltd.)
2. Fundamentals of Financial Management :- Chandra Prasanna (Tata McGraw Hill Publishing Co. Ltd.)
3. Management Accounting & Financial Management :-Arora M N (Himalaya Publishing House Pvt. Ltd.)
4. Business Finance : Dr.Jain V. K. ,And Sharma D.G. (Shethe publishers PVT. LTD.

B.Com. Third Year

Semester-VI

39-Financial Accounting- V

Unit-I- Accounts of Holding Company-

Introduction, Meaning of Wholly-owned subsidiary, partly-owned subsidiary, preparation of Consolidated Balance Sheet and Profit and Loss Account, simple problem on involving two companies only.

Unit-II- Insurance Claims

Introduction, loss of stock Average clause practical problem on loss of stock.

Unit-III- Investment Accounts

Meaning , Need, Utility and objectives, Sales and Purchase of different types of Securities, Simple problem on Investment and Securities.

Unit-IV- Profit prior to incorporation-

Meaning Methods of ascertain the pre-incorporation profit, Issue and Redemption of preference shares Redemption out of new issue of shares Redemption at premium out of new issue of shares, Redemption out of profit.

Books

S. N. Maheshwar :- Financial Accounting – Vikas Publishing House, New Delhi

□□ Gupta R. L. – Advanced Financial Accounting – S. Chand & Sons

□□ Kumar, Anil S. – Advanced Financial Accounting – Himalaya Publication House

□□ Shukla and Grewal : Advanced Accounts (S. Chand & Ltd. New Delhi)

□□ Jain and Narang : Advanced Accounts (Kalyani Publishers, Ludhiana)

□□ Sr. K. Paul : Accountancy, Volume –I and II (New Central Book Agency, Kolkata)

□□ R. K. Lele and Jawaharlal : Accounting Theory (Himalaya Publishers)

□□ M. A. Arulnandam :- Advance Accounting – Himalay Publication

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□□ Prof. Pradeep Wath, Dr. R. D. Mehta, Dr. Dilip Gotmare :- Financial Accounting – Payal Prakashan

Semester-VI

40-Management Accounting

Unit_I Management Accounting :-

Meaning, Scope, Importance, and Limitations of Management Accounting. Difference between Cost Accounting and Management Accounting, Role of Management Accounting. Break -Even Point Analysis (**Theory & Numericals**)

Unit – II

Business Budget & Budgetary Control:

Meaning, Characteristics, Objectives, Advantages, Limitations. Classification & Types of Budgets. Problems on Cash Budget and Flexible Budget Only (**Theory & Numericals**)

Unit – III

Ratio Analysis:

Meaning, Importance and Limitations of Ratio Analysis, Classification of Ratio, Computation of Profitability Ratio, Financial Ratio with special reference to Current Ratio, Acid Test/ Liquid Ratio, Inventory Turnover Ratio Debtors and Creditors Turnover Ratio, Fixed Assets Turnover Ratio, Debt-Equity Ratio, Working Capital Ratio, , Earnings per Share Ratio. (**Theory & Numericals**)

Unit – IV

Fund Flow Analysis:

Meaning, Sources of fund, Uses of fund, Distinguish between fund flow statement and Balance Sheet. Preparation of Statement showing Changes in Working Capital, Profit from operation, Fund flow Statement (**Theory & Numericals**)

Books Recommended –

- S. N Maheshwari : Cost Accounting Theory and problems –Shri Mahavir Book Depot, New Delhi
- V.K. Saxena : Cost Accounting Text Book- Sultan Chand and Sons New Delhi
- M.C. Shukls – T.S. – Grewal, M.P. Gupta – Cost Accounting – S. Chand , New Delhi
- R. S. N. Pallai, V Bhagavathi – Cost Accounting – S. Chand, New Delhi
- S. M. Shukla :- Cost Accounts (Hindi)
- Nigam R. S. – Advanced Cost Accounting , S. Chand & Company
- Jain S. P. – Advanced Cost Accounting – Kalyani Publication
- Gawada, J Made – Advanced Cost Accounting – Himalaya Publication House
- Pillai R. S. N. – Management Accounting – S. Chand & Co. Pvt. Ltd.
- Agrawal N. K. – Managements Accounting – Galgotia Publication
- Singh, Jagwant - Managements Accountings – KitabMahal
- Rathnam P. V. - Managements Accountings – KitabMahal
- Sharma R. K. - Managements Accountings – Kalyani Publication

Semester VI

41-AdvancedStatistics

UNit I

Correlation- Types of correlation, Karl Pearson's coefficient of correlation in Bivariate frequency table, probable error, interpretation of 'r', Rank Correlation Method.

Unit II

Regression Analysis- Lines of Regression/Regressions Equation, Coefficient of regression for a Bivariate frequency table.

Unit III

Index Number- Uses of I N, Types of I No. Methods of Index Number. Test of consistency of Index No.- unit test Time Reversed Test, Factor cost of living Index No.

Unit IV

. Time series Analysis-Introduction components of a Time series- a) Trend b) Short Term Variation c) Irregular variation d) Measurement of Trend- (Simple Problems)
Graphic Methods, Methods of Seminar, Methods of Curve by the square
Methods of Moving Average

42- Indian Economy – II

Unit I: Indian Agriculture

Nature, Role of Agriculture in Indian Economy. Cropping Pattern in India and its Determining Factors. Land Reforms. Cooperative Farming & Marketing. Green Revolution: Impact and Constraints. Cause & Remedies to Low Agricultural Production and Productivity. Agriculture Marketing-Problems & Remedies. Agricultural Labour - Problems & Remedies. Sources of Agriculture Finance. NABARD (National Bank for Agriculture and Rural Development). Financial Inclusion. Agricultural Price Policy- Objectives and Constituents. Agricultural Subsidies in India. Crop & Live Stock Insurance -Problems and Remedies.

Unit II: Indian Industry

Industrial Policy 1991. Small Scale and Cottage Industries- Role, Performance, Problems and Remedies. Public Sector Industries - Role, Performance, Problems and Remedies. Privatization of Public Sector Industries: Meaning, Methods of Privatization Policy in India. Arguments in favor and against privatization. Policy of Disinvestment. Industrial Sickness in India- Definition, Causes, Effects, Remedial Measures. Indian Trade Union Movement: Role, Functions, Strength and Weaknesses.

Unit III: Indian Service Sector

Growth of Services Sector in India. Nature, Scope, Trends & Importance of Service Sector in Current Scenario. Share of Service Sector in India's Employment Generation. Contribution of Service Sector to India's GDP. Government's reforms in various Services. IT & ITES Sector-Trend, Role & Importance. Challenges and Opportunity in IT & ITES Sector. Banking & Insurance Sector- Importance of Banking and Insurance Industry in India's Service Sector, Challenges and Opportunities.

Unit IV: India's International Trade

Foreign Trade -Concept and Meaning, Advantages, Disadvantages, Composition and Direction of India's Exports & Imports. Special Economic Zones- Concept, History, Benefits, Arguments against SEZs. Foreign Capital and Aid- Need, Role, Problems. India's External Debt. Multinational Corporations(MNCs)- Role, Importance, Advantages and Disadvantages. Impact of MNCs on Indian Economy. Liberalization, Privatization, Globalization(LPG)- Meaning, Role, Impact of LPG on Indian economy. World Trade Organization (WTO)- Objectives, Working and Functions, WTO & India.

Books Recommended:

1. Indian Economy, Datt & Sundharam, S Chand.
2. The Indian Economy: Problems and Prospects, D .R.Gadgil.
3. Globalization And Indian Economy, R.Chaddha, Sumit Enterprises.
4. Indian Economy : Problems of Development and Planning, A.N.Agrawal, New Age International.
5. Indian Economy, Misra & Puri, Himalaya Publishing House Pvt. Ltd.
6. Government of India- Five Year Plans.
7. Government of India- Economy Survey.
8. Reserve Bank of India- Annual Reports on Currency and Finance.

Elective Group- II

43- Human Resource Management

UNIT-I

Introduction

Human Resource Management, Definition, Objectives, Functions, Scope, Importance.
Quality of a ideal Human Resource Managers

UNIT-II

Recruitment selection and training

Recruitment: - meaning, source; selection process and importance, placement and induction, career planning v/s manpower planning

Training: - meaning, method, training and development,

UNIT-V

Labour welfare and Collective bargaining

Labour welfare: - Safety and Health Measures Workers Participation in Management - Objectives for Wage Incentive - Fringe Benefits

Collective Bargaining - Features - Pre-requisite of Collective Bargaining - Agreement at different levels, Successful Participation of workers in Management.

UNIT-IV

Human resource planning and accounting

Human Resource Planning - Human Capital Investment - Expenditure vs. Productivity

Meaning and Definition of Human Resource Accounting, Importance; Human Resource Accounting - Measurement of Human Value addition into Money Value

Suggested Books:

1. Human Resource Management - Dr. C.B. Gupta - Sultan and Sons.
2. Personnel & Human Resource Management - P. Subba Rao - Himalaya Publishing House.
3. Human Resource and Personnel Management - K. Aswathappa - Tata Mc Graw Hill Publishing Co. Ltd.

Human Resource Management, Dr. Arvind shende, Dr. Dilip Vairagade, Dr. Devendra. Mohture, Anuradha Prakashan, Nagpur.

4. Personnel Management & Human Resources - C.S. Venkata Rathnam & B.K. Srivastava. TMPL.

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Foundation Group II

44- Business Finance – II

Unit – I

Financial Market in India : significance of Financial Markets, Objectives and functions of the financial System, Types of Financial Markets,

Money Market- Meaning , features, functions, Composition

Capital Market- Meaning ,Composition & Structure of Capital Market Market segment. Products and Participant's in Primary market. Regulatory authorities governing financial and capital market.

SEBI - (Security Exchange Board of India)Organisational structure of SEBI, Role and Functions of Stock Exchange and SEBI, Regulation issued by SEBI, Achievements of SEBI.(Theory)

Unit – II Primary Market: Meaning, Functions, Scope & Significance of PrimaryMarket,Developments in the Primary Market, Primary Market Intermediaries.

Secondary Market: Meaning , Difference between Primary Market & Secondary Market, Products dealt in the Secondary Market, Stock Exchange, Secondary Market Intermediaries. Listing Procedure. NSE and BSE. (Theory)

Capital Budgeting - Meaning, Nature and Importance of Capital Budgeting, Investment Appraisal Techniques, Pay Back Period Method, Rate of return method, Net Present Value Method, Discounted Cash Flow Method, (Theory & Numericals)

Unit – III NBFC's- Meaning, Formation of NBFC's , Types and Regulation of NBFC's,

Credit Rating: Meaning /Concept, Scope & Significance of credit rating, Benefits to Investors. Credit Rating Agency in India CRISIL, ICRA, CARE. (Theory)

Dividend Policies- Essentials of Sound Dividend Policy, Determination of Dividend Policy and its types ,Surplus and Reserve Policy, (Theory & Numericals)

Unit -I V - Cash Flow for Investment Analysis- Meaning, Benefits and Uses of Cash Flow Statement. Significance ,Limitations of Cash Flow Statement. Format of Cash Flow Statement as per AS-3. (Theory & Numericals)

Books Recommended:

Financial Management Problems &Solutions :- Kishore Ravi M (Taxman Allied Service (p) Ltd.)

Fundamentals of Financial Management :- Chandra Prasanna (Tata McGraw Hill Publishing Co. Ltd.)

Management Accounting & Financial Management :-Arora M N (Himalaya Publishing House Pvt. Ltd.)

Business Finance : Dr.Jain V. K. ,And Sharma D.G. (Shethe publishers PVT.)

(BCCA)Part-I

Semester – I

Paper – I

45- 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

Prose

- 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

Paper - II
46- FinancialAccounting

UNIT – I

Accounting Concepts:- Introduction, Accounting Concepts and Conventions, Generally Accepted Accounting Principles(GAAP), Conceptual Basis of a Balance Sheet, Capital and Revenue Income and Expenditure, Indian Accounting Standards AS 1 to AS 10.

Mechanics of Accounting:- Introduction, Classification of Accounts, Double Entry System, Overview of Accounting cycle, Preparing journals, Subsidiary Books, Ledger, Preparation of Trial Balance (Theory & Numerical)

UNIT – II

Preparation of final Accounts of Sole Traders :- Introduction, Describe format of P & L Account, Format of Balance Sheet, Treatment of Adjustments, The components of a set of final accounts for a sole trader. Prepare Trading Account, Profit & Loss Account and Balance Sheet (Theory & Numerical)

UNIT – III

Valuation of Goodwill – Meaning and need for valuation of goodwill, Feature of goodwill, Factors influencing valuation for goodwill, Average profit method (Future maintainable profit method), Weighted average profit method, Super profit method, Capitalization method, Annuity Method. (Theory & Numerical)

UNIT – IV

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)

Paper - III

47-Fundamentals of Computer

UNIT – I

Understanding the Computer:- Introduction, Evolution, Generation, Classification and Application of computers. **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.

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, Conversion of numbers

UNIT – III

Computer Software: Introduction, Types of computer software, System management programs, System development programs, standard application programs. **Programming Languages:** Introduction, History of programming languages, Generations of programming languages, Characteristics of good programming languages, Developing a program, Running 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,

Paper - IV
48 – 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. **Control Statements:** Conditional Expressions, Loop Statements, Breaking control statements.

UNIT – II

Functions and Program Structures: Introduction, Defining a Function, Types of User Defined Functions, Return Statement, Actual & Formal Arguments, Local & Global Variables, Scope of Variables, Recursive Functions. **Arrays:** One dimensional array, Array Declaration, Array Initialization, Two dimensional array, Declaration and initialization of two dimensional array, multidimensional array, Character array and Strings functions.

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 File handling: Declaration of Structure, Initializing a Structure, Array of Structure, Arrays within Structure, Pointer and Structure, Union. **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, Random Access File processing.

49-Practical

Semester – II

Paper – I

50 - English and Business Communication – II

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

Poetry

- I. Say Not the Struggle Naught Availeth - Arthur Hugh Clough
- II. No Men are Foreign- James Kirkup
- III. Abou Ben Adhem - James Leigh Hunt

Paper - II

51 – 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.

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, **Staffing-** Importance And Need For Proper Staffing, Manpower Planning, Recruitment, Selection, Placement, Induction, Manpower Planning In India.

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 **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. **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.

Paper - III
52 – 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 invocated Functions, Nested Functions, Scope Rules, Side Effects, Storage Class Specifiers, Recursive Function, Pre-processors, Header Files, Standard Functions. **Arrays:** Introduction, Array Notation, Array Declaration, Array Initialization, Processing with Arrays, Character Array. **Pointers and Strings:** Introduction, Pointer Arithmetic, Pointers and Functions, Pointers and Arrays, Pointer and Strings.

Structures and Unions:- Introduction, Declaration of Structure, Processing with Structures, Initialization of Structures, Functions and Structures, Array of Structure, Pointer and Structure, Unions.

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. **Special Member Function:** Introduction, Constructors, Destructors, Inline Member Functions, Static Class Members, Friend Function, This Pointer. **Single and Multiple Inheritance:** Introduction, Single Inheritance, Types of Base Classes, Type of Derivation, Multiple Inheritance, 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, Virtual Functions, Pure Virtual Functions, Abstract Base Classes, Virtual Base Classes. **Data File Operations:** Opening and Closing of Files, Reading/Writing a Character from a File, Binary File Operations.

Paper - IV

53 – E-Commerce and 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.

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 Markets, Future of Electronic Markets. **Electronic Data Interchange (EDI):** Introduction to EDI, EDI definition, The Benefits of EDI, EDI Example. **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 - 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. **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 Doc

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, Input type Attribute, Drop Down List, Sample Forms

54.Practical

BCCA Part – II

Semester – III

Paper – I

55: Environmental Studies (3T1)

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.

Paper – II
56: Business Economics (3T2)

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 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

Off. Principal
20/03/2021
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S.S. Marlar College, Nagpur

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 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?.

Paper – III
57: Visual Basic Programming (3T3)

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, Control Arrays 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, 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.

Paper – IV
58: Database Management System (3T4)

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.

59: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.
- 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
4. MikeTyson

- c. Chess
- 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.

$$\begin{aligned} \text{Area of Triangle} &= \frac{1}{2} \times \text{Base} \times \text{Height} \\ \text{Area of Circle} &= \text{Pi} \times \text{Radius} \times \text{Radius} \end{aligned}$$

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

$$\begin{aligned} \text{Celsius} &= (F - 32) \times (5 / 9) \\ \text{Fahrenheit} &= (C + 32) \times (9 / 5) \end{aligned}$$

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.

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. Are 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.

Practical List of Database Management System

1. Write a SQL Query to create a table **employeeell**:

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 **—studentll**:

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**ll:

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.

4. Write a SQL Query to create a table —**customer**ll:

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.
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.

BCCA Part – II

Semester – IV

Paper – I

60: Mathematics (4T1)

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 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.

Paper - II

61: Business Law (4T2)

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 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

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20/03/2021
Off. Principal,
S.S. Manikar College, Nagpur

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.

Paper – III
62: Core Java (4T3)

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 BlackJack 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.

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.

Paper – IV
63: PHP & MySQL (4T4)

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.

64:Practicle

Practical List of PHP & My-SQL

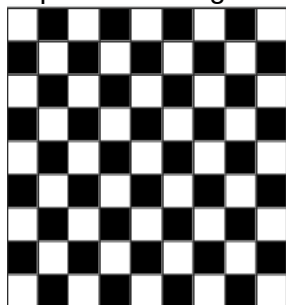
1. Write an algorithm, draw a flowchart and Write a PHP script to print the value of variable in PHP and use print function for printing.
2. Write an algorithm, draw a flowchart and Write a PHP script to print the values of variable using echo.
3. Write an algorithm, draw a flowchart and Write a PHP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

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

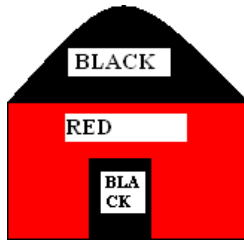
*	1	1	1
* *	1 2	2 2	2 2
* * *	1 2 3	3 3 3	3 3 3
* * * *	1 2 3 4	2 2	4 4 4 4
- A5.** Write an algorithm, draw a flowchart and develop a Java program to accept any 10 numbers from the user to store it in an Array and print the largest of all.
- A6.** Write an algorithm, draw a flowchart and develop a Java 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
- i. public variables and methods
 - 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 A
P
A P P
A P P L
A P P L E
A P P L E T

- 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
- Green Color should be for exact 3 sec
 - 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.
- 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.

BCCA Part – III
Semester – V

Paper – I

65: Computerized Accounting using Tally (5T1)

UNIT-I

Introduction to Tally.ERP 9- Features of Tally, Enhancement in Tally.ERP 9, Installation Procedure of Tally.ERP 9, Opening Tally.ERP 9, Components of the Tally.ERP 9 Window, Creating a Company.**Stock and Godown in Tally-** Stock Groups, Stock Categories, Stock Items, Units of Measure, Godowns.

UNIT-II

Groups, Ledgers, Vouchers and Orders- Introducing Groups, Introducing Ledgers, Introducing Vouchers, Introducing Purchase Orders, Introducing a Sales Order, Introducing Invoices. **Reports in Tally.ERP 9-** Working with Balance Sheet, Working with Profit & Loss A/c Report, Working with Stock Summary Report, Understanding Ratio Analysis, Working with Trial Balance Report, Working with Day Book Report.

UNIT-III

Exploring Payroll in Tally.ERP 9- Working with Payroll Vouchers, Defining Payroll Reports, Working with Statements of Payroll Report, Describing Salary Disbursement.**Taxation-** Indian Tax Structure, Tax Deducted at Source in Tally.ERP 9, Create a Tax Ledger, TDS Vouchers, Printing a TDS Challan, Tax Collected at Source in Tally.ERP 9, TCS Reports in Tally.ERP 9, Calculating VAT in Tally.ERP 9, VAT Classification, VAT Vouchers, VAT Reports in Tally.ERP 9, Service Tax.

UNIT-IV

Important Features of Tally.ERP 9- Taking Backup in Tally.ERP 9, Restoring Data in Tally. ERP 9, Using E-mail in Tally.ERP 9, Migrating Data from Tally 7.2 to Tally.ERP 9, **Tally.NET in Tally.ERP 9-** Configuring the Tally.NET Feature, Assigning Security Levels, Creating Security Controls, Connecting a Company to the Tally.NET Server, Logging as a Remote User.

Paper - II
66: VB.Net (5T2)

UNIT- I

Welcome to Visual Basic.NET – Windows Versus DOS Programming, Installing Visual Basic.NET, The Visual Basic.NET IDE, Creating a Simple Application, Using the Help System. **The Microsoft.NET Framework** – Microsoft's Reliance on Windows, Writing Software for Windows, Common Language Runtime, The Common Type System and Common Language Specification. **Writing Software** – Information and Data, **Variables**, Comments and Whitespaces, Data Types, Sorting Variables, Methods. **Controlling the Flow** – Making Decisions, The if Statement, Select Case, Loops.

UNIT- II

Working with Data Structure – Understanding Array, Understanding Enumerations, Understanding Constants, Structures, Working with Collection and Lists, Building Lookup Tables with Hashtable, Advanced Array Manipulation. **Building Windows Application** – Responding to Events, Building a Simple Application, Creating Complex Applications, Using Multiple Forms. **Displaying Dialog Boxes** – The MessageBox Dialog box, The Open Dialog Control, The Save Dialog Control, The FontDialog Control, The ColorDialog Control, The PrintDialog Control.

UNIT- III

Creating Menu – Understanding Menu Features, Creating Menu, Context Menu. **Debugging and Error Handling** – Major Error Types, Debugging, Error Handling. **Building Objects** – Understanding Objects, Reusability, Our First Object, Constructor, Inheritance, The Framework Classes.

UNIT- IV

Accessing Database – What is Database, SQL Select Statement, Queries in Access, Data Access Components, Data Binding. **Database Programming with SQL Server and ADO.NET** –ADO.NET, The ADO.NET Classes in Action, Data Binding. **Deploying Your Application** – What is Deployment?, Creating a Visual Studio .NET Setup Application, Assemblies as Installers, The Core of Deployment, Deploying Different Solution, Advance Deployment Option.

Paper – III

67: System analysis & Design (5T3)

UNIT- I

System Concept And The Information Systems Environment- Introduction, The Systems Concept, Characteristics Of A System, Elements Of A System, Types Of A System. **The System Development Life Cycle** - Introduction, System Development Life Cycle, Considerations for the Candidate System, Prototyping. **The Role Of System Analyst-** Introduction, Definition, Historical Perspective, What Does It Take To Do Systems Analysis?, The Multifaceted Role Of The Analyst, The Analyst/User Interface, The Place Of The Analyst In The MIS Organization, Rising Positions In System Development, Conclusions.

UNIT- II

System Analysis- System Planning And The Initial Investigation- Introduction, Bases For Planning In System Analysis, Initial Investigation. **Information Gathering-** Introduction, What Kinds Of Information Do We Need?, Where Does Information Originate?, Information Gathering Tools. **The Tools Of Structured Analysis-** Introduction, What Is Structured Analysis?, The Tools Of Structured Analysis. **Feasibility Study-** Introduction, System Performance Definition, Feasibility Study.

UNIT- III

System Design- The Process And Stages Of System Design- Introduction, The Process Of Design, Design Methodologies, Major Development Activities, Audit Consideration. **Input/output And Forms Design-** Introduction, Input Design, Output Design, Forms Design. **File Organization And Data Base Design-** Introduction, File Structure, File Organization, Data Base Design, The Role Of The Data Base Administrator.

UNIT- IV

System Implementation- System Testing And Quality Assurance- Introduction, Why System Testing?, What Do We Test For?, The Test Plan, Quality Assurance, Trends In Testing, Role Of Data Processing Auditor. **Implementation And Software Maintenance-** Introduction, Conversion, Combating Resistance To Change, Post-Implementation Review, Software Maintenance. **Hardware/ Software Selection And The Computer Contract-** Introduction, The Computer Industry, The Software Industry, A Procedure For Hardware/ Software Selection, Financial Considerations In Selection, The Used Computer, The Computer Contract.

68: Cost & Management Accounting (5T4)

UNIT- I

Introduction to Cost and Management Accounting: Accounting Framework And Taxonomy, From Cost Accounting To Cost Management, The Dimensions Of Management Accounting. **Forces Shaping Business Environment And Their Effect On Cost And Management Accounting: Drivers** Defining The Future Of Business And Accounting, Trends In Cost And Management Accounting , Evolving Role Of Cost And Management Accountants, Profession Of Cost And Management Accountants.

UNIT- II

Strategic Management Accounting: Linking Strategy to Management Accounting Value Chain for Strategic Management Accounting, Life Cycle Costing, Target Costing, Kaizen Costing. **Cost Measurement and Estimation:** Definition and Measurement Of Cost, Costs On Financial Statements, The Statements Of Financial Position, The Income Statement, Cost Classification, Cost Estimation Methods.

UNIT- III

Costing Systems: Alternative Cost Accumulation Systems—Contingency Based Approach To Accounting, Levels Of Costing Systems, Income Analysis Under Alternative Costing Systems, Reconciling Income Under Alternative Costing Systems, Impact Of Just In Time (JIT) Inventory System. **Job Order Costing:** An Overview Of Traditional Costing Systems, Job Order Costing System For Manufacturing Companies, Job Order Costing System For Service Companies, Job Order Costing For Planning Purposes.

UNIT- IV

Process Costing: Product And Cost Flows Through Process Costing System, Calculating Unit Cost, Process Costing Methods, Production Cost Report, Operation Costing, Accounting For By-Products, Allocation Of Support Service Costs. **Activity- Based Costing And Customer Profitability Analysis:** Traditional Volume-Based Costing, Activity Based Costing (abc), Comparison Of Traditional Volume-Based With The Activity-Based Costing, Advantage And Disadvantages Of Activity-Based Costing, Activity-Based Management(ABM), Scope And Advances In Activity Based Costing, Customer Profitability Analysis.

69:Prctical

Practical List of Computerised Accounting using Tally

1. Create a company in Tally.Erp 9 with the following details:

Name of company	Universal Company Ltd.
Address	1804, world Tower, AB road, Baner, Pune _411080
Country	India
State	Maharashtra
Contact number	7894561230
Mobile number	7741258963
Email-Id	info@universalmfg.co.in
Books beginning from	01-04-2015
Financial year Beginning from	01-04-2015

2. Create a company in Tally.Erp 9 with the following details:

Name of company	Sambhav trading Company
Address	a/512, palm court, girgaam chaupaty, charni road, Mumbai-400007
Country	India
State	Maharashtra
Contact number	022-22886512
Mobile number	9898745555
Email-Id	enquiry@sambhav.com
Books beginning from	01-04-2014
Financial year Beginning from	01-04-2014

3. Create the following ledgers in the books of universal company ltd.

Name of ledger	Under (group)	Bill wise details set to	Opening balance
Share capital	Capital account	No	15,00,000
Purchase account	Purchase account	No	Nil
Sales accounts	Sales accounts	No	Nil
Ultra tech cement ltd	Sundry creditors	yes	270000
Building	Fixed assets	No	1200000
Computers	Fixed assets	No	50000
Office furniture	Fixed assets	No	175000
Cash in hand	Cash accounts	No	20000
Civic centre association	Sundry debtors	yes	290000
Bank of india	Bank accounts	No	80000
Petty cash	Cash in hand	No	50000

Handwritten signature
20/03/2021
Off. Principal,
S.S. Maniar College, Nagpur

4. Create the following ledgers in the books of universal company ltd.

Name of ledger	Under (group)	Bill wise details set to	Opening balance
Proprietors capital	Capital account	No	10,00,000
Purchase account	Purchase account	No	Nil
Sales accounts	Sales accounts	No	Nil
Hindustan unilever Ltd	Sundry creditors	yes	355000
Land and Building	Fixed assets	No	850000
Computers and peripheral	Fixed assets	No	30000
Office furniture	Fixed assets	No	75000
Cash in hand	Cash accounts	No	18000
Tahuraa Traders Pvt. Ltd	Sundry debtors	yes	310000
Bank of Baroda	Bank accounts	No	102000

5. Record the following vouchers in the books of Universal company ltd.

- 04-04-2014 withdrawn Rs. 20000 from bank of india and transferred to petty cash book.
- 08-04-2014 paid 2000 from petty cash for buying stationery for office.
- 15-04-2014 made purchase from ultra tech cement Ltd. Worth Rs. 45000
- 19-04-2014 issued cheque to ultra tech cement Ltd for Rs. 45000
- 21-04-2014 sold goods worth of Rs. 75000 to civic centre association
- 25-04-2014 received a cheque from civic center association for Rs. 75000. The same was deposited in the bank on the same date.
- 30-04-2014 paid staff salary of Rs. 9800 from petty cash

6. Record the following vouchers in the books of Sambhav Trading Co. Pvt. ltd.

- 02-04-2014 withdrawn RS. 10000 From bank of broadband transferred to petty cash book.
- 05-04-2014 paid 1000 from petty cash for office expenses.
- 11-04-2014 made purchase from Hindustan unilever Ltd. Worth Rs. 33000
- 13-04-2014 Issued cheque to Hindustan Unilever Ltd. For Rs. 20000
- 14-04-2014 Made purchase from Hindustan Unilever Ltd. Worth Rs. 26000
- 18-04-2014 Issued cheque of Rs. 38000 to Hindustan Unilever Ltd.
- 21-04-2014 sold goods worth of Rs. 90000 to Tahuraa Traders Pvt Ltd.
- 22-04-2014 received a cheque from Tahuraa Traders Pvt Ltd. For Rs. 75000 . The same was deposited in the bank on the same date.
- 23-04-2014 sold goods worth of rs. 85000 to Tahuraa Traders Pvt Ltd.
- 25-04-2014 received cheque from Tahuraa Traders Pvt Ltd. From Rs.75000. The same was deposited in the bank on the same date.
- 30-04-2014 Paid staff salary of Rs. 7200 from petty cash.

7. Journalize the following transaction in the books of Sanjay Poddar for the month of March 2012.

March 2012	Particular	Amt
1	Sanjay commenced business with cash	40000
2	Bought goods for cash	25000
5	Deposit in Bank	50000
7	Bought goods in credit from Anand	15000
10	Sold goods to Prakash	7000
12	Purchase Machinery Payment made by Cheque	10000

8. Journalize the following transaction in the books of Prashant for April 2011 prepare Balance sheet.

April 2011	Particular	Amt
1	Start business with capital borrowed from his friend Satish	1,10,000
3	Bought Machinery	40,000
5	Sold goods for cash to Satish	25000
7	Purchase goods from Somesh	30000
9	Bought goods for cash from Nitin	26000
11	Cash sales	10000
15	sold goods to Manish	8000

9. Journalize the following transaction in the books of Rahul Thakur for the month of March 2012 and prepare profit and loss account.

March 2012	Particulars	Amt
1	Start Business with Furniture And machinery	15000 40000
2	Borrowed from central Bank	45000
5	Bought goods	30000
8	Sold goods to Manoj on credit	12000
10	Paid Electricity Bill	1500
13	Bought Stationary from Vikas	8500

10. Journalize the following transaction in the books of Rupesh for the year ended March 2012 and prepare Profit and loss account.

March 2012	Particulars	Amt
1	Rupesh commenced business with cash	80000
2	Bought goods on credit from Ramesh	15000
6	Paid into Bank	8000
8	Bough from Sanket on credit	15000
10	Bought goods for cash	12000
12	Received goods from Sukesh	7500
15	Goods sold on credit to Chanda	9000

11. Create cost centers Project A and Project B under primary cost category and record the following transaction in the books of sambhav trading company

- On 07-09-2014, purchased Cement worth Rs. 1, 50,000/- from Ultratech cement Ltd. That will be shared equally between Project A and Project B. A credit period of 30 days was provided.
- Record transaction on 09-09-2014 for the purchase of Steel worth Rs. 4,50,000/- from Embee Enterprises. Allocate Rs. 50,000/- to Project A and the the rest to Project B. a credit period of 45 days was allowed.

12. Create cost centers Mumbai and Pune under primary cost category and record the following transaction in the books of Universal co. Limited

- On 05-10-2014, purchases done worth Rs. 2, 50,000/- from Hindustan Unilever Ltd. That will be shared equally between Mumbai and Pune.

- b. Record transaction on 09-10-2014 for the purchase worth Rs. 6,00,000 /- from Hindustan Unilever Ltd. Allocate Rs. 2,50,000/- to Mumbai and the rest to Pune. A credit period of 45 days was allowed.
- c. On 18-10-2014 record a transaction for the sale on Super technologies for Rs. 15,75,000/- of which 1200000 would be allocated to Mumbai branch and the rest to Pune.
- d. On 22-10-2014 one more sales entry was made for Rs. 16,00,000/- to Super technologies of which Rs. 10,00,000/- was allocated to pune branch and the rest to Mumbai.

13. Record the following transaction in the books of Universal Co. Ltd.

- a. On May 11/2014 they received a bill no. May /005/2014 for a sum of Rs. 125000/- from M/s. Rajesh shah and Co., architects for consultancy towards designing their office and training centre.
- b. Universal company Ltd. Made the payment after deducting the TDS amount.
- c. On 27th May 2014, company received bill no May/015/2014 for a sum of Rs. 75000 from M/s Rajesh shah and co., architects for consultancy.
- d. On 28th May, company made the payment after deducting TDS.

14. Record the following transaction in the books of Raj enterprises.

1. Goods purchase from -Kirti salesl on credit Bill no. 115 Rs. 62000
 - a. Color tv (lg) 4% 3qty Rs. 30000
 - b. Washing machine (Samsung) 4% 4 qty Rs. 32000
2. Cash received from sangamenter prizes Rs. 15000
3. Goods purchase in cash bill no. 69 Rs. 35000
 - a. B/W tv (Sony) 4% 4 qty Rs. 20000
 - b. Audio (onida) 4% 5 qty Rs. 15000
4. Goods sale on cash rs, 19000
 - a. Color tv (Lg) 4% 1 qty Rs. 15500
 - b. Audio (Onida) 4% 1 qty Rs. 3500
5. Goods purchase in cash from vikram enterprises bill no. 45 Rs. 40000
 - a. Color tv (lg) 4% 2 qty Rs. 20000
 - b. Refrigerator (Videocon) 4% 2qty Rs. 20000
6. Cheque no. received from ravi agency Rs. 10000 and deposited in state bank .
7. Credit sale to vijay enterprises bill no. 93 Rs.17200
 - a. Washing machine (Samsung) 4% 1qty Rs. 8000
 - b. B/W tv (Sony) 4% 1 Qty Rs. 5700
 - c. Audio (Onida) 4% 1 qty Rs. 3500
8. Cash paid to ravi kulkarnirs. 1500
9. Cheque no. 159 paid to central engineering co. Rs 15000
10. Refrigerator purchase on cash Rs. 30000 fom k k agency 3 qty (Videocon) 4%
11. Office rent paid in cash Rs. 1700
12. Received cheque from vijay enterprises Rs. 10000 & deposited in canara bank.
13. Bill received from lokmat Rs. 1500 bill no.5
14. Amount received from vaishali agency in cash rs. 5000 & cheque no. 336791 Rs. 10000 only. Cheque deposited in state bank.
15. Cash sale to Telco ltd. Rs. 29900

- a. Color tv (Lg) 4% 1 qty Rs. 10000
 - b. Washing machine (Samsung) 4% 1 qty Rs. 9100
 - c. Refrigerator (Videocon) 4% 1qty Rs. 10800
16. Cheque deposited in canara bank Rs.5000
17. Cash withdrawn from bank Rs. 34000

15. Record the following transaction in the books of Maharashtra Traders.

1. Opening stock for Wadi Godown
 - a. Akai color TV 4% 10 qty Rs.10500 each.
 - b. Refrigerator (Videocon) 7qty 12000 each.
 - c. Washing machine (Samsung) 5 qty 8000 each
 - d. Audio (Philips) 4% 2Qty 2000
 - e. Onida color tv 4% 5 qty 12000 each
 - f. B/W tv (akai) 4% 5 qty 18000
2. Opening stock for nandanwangodown
 - a. Akai color tv 2 qty 10500 each
 - b. refrigerator (Videocon) 3qty 12000 each
 - c. Audio (Philips) 3 qty 1000 each.
3. Cash sale to Bhagwandas Co. Rs. 41500 in wadi godown.
 - a. Color tv (akai) 4% 2 qty Rs.21000.
 - b. Refrigerator (Vedeocon) 4% 1qty Rs. 11300
 - c. Washing Machine (samsung) 4% 1 qty Rs. 9200.
4. Goods purchase in cash from national Trading co. & store Nandanwan godown.
 - a. Audio (Philips) 2qty 4% Rs.6000
 - b. W/M (Samsung) 1qty 4% Rs. 10000
5. Credit sales to Ravina traders Rs. 51800 wadi godown.
 - a. Refrigerator (Videocon) 2qty 4% Rs. 22000.
 - b. W/M (Samsung) 1qty 4% Rs.8300
 - c. Color tv (akai) 2qty 4% 21500
6. Cheque received from vikas enterprises Rs. 20000 & deposited in state bank.
7. Cash withdrawn from state bank cheque no. 16 Rs. 15000/-
8. Received loan from state bank Rs. 10,00,000/- invested in business, interest 10%.
9. Cheque paid to kirti sales rs. 25000/-
10. Goods purchase on credit from rama & sons Rs. 44000 store nandanwan.
 - a. W/M (Lg) 3 qty 4% Rs. 24000
 - b. Refrigerator (Videocon) 1qty 4% Rs. 10000.
 - c. Color tv (onida) 1qty 45 Rs. 10000
11. Akai color Tv purchase in cash Rs. 20000 2qty 4% Rao store in nandanwan.
12. Paid salary Rs. 10000
13. Paid bank loan Rs. 8,00,000
14. Cash sale on wadi godown Rs 42000\
 - a. Audio 2 qty 4% Rs.7000
 - b. w/m (s.s.) 2qty 4% Rs. 17000
 - c. b/w tv (akai) 3qty 4% Rs. 18000
15. Paid to rama & sons by cheque Rs. 18000 chq. No. 1152.
16. Paid electric bill Rs. 10000
17. Total cash sale after allowing discount Rs. 1000

18. Paid total balance loan on state bank.
19. Advertisement exp. Rs.10000
20. Carriage exp. Rs. 5000
21. Purchase furniture for nandan wangodown Rs.28000 in cash.
22. Withdrawn for personal use Rs, 10000.

16. Record the following transaction in the books of Rathore Traders.

1. Goods purchase from sohan & sons Rs. 20000/-
 - a. Gold 10gm (12.5%) Rs. 10000/-
 - b. Silver 1kg (12.5%) Rs.10000/-
2. Goods purchase from sagar computer Rs. 25000/-
 - a. Monitor (Compaq) 1qty 5000/- 4%
 - b. Cpu (Intel) 1qty 15000/- 4%
 - c. Speaker (Logitech) 1qty 5000/- each
3. Goods sold on cash Rs. 22000/-
 - a. Gold (12.5%) 10gm 12000/-
 - b. Silver(12.5%) 1kg 10000/-
4. Withdrawn 400/- Rs. From canara bank.
5. Cash given to sagar computers Rs. 24000/- in full settlement.
6. Cheque given to mr.sohan& sons. Rs 20000.
7. Salary given to mr.sahil Rs. 2000/-
8. Withdrawn Rs. 4000/-
9. Paid insurance premium Rs. 200/-
10. Purchase table without vat Rs.2000/-

Practical List ofVB. Net

1. Write an algorithm, draw a flowchart and develop a VB.NET console application to calculate the reverse of a number.
2. Write an algorithm, draw a flowchart and develop a VB.NET console application to implement the Cos series.
3. Write an algorithm, draw a flowchart and develop a VB.NET console application to find largest and second largest number from the array.
4. Write an algorithm, draw a flowchart and develop a VB.NET console application to create all possible sets from given set {1, 2, 3}.
5. Write an algorithm, draw a flowchart and develop a VB.NET console application to display the following pattern –

```

      *
    * *
  * * * *
* * * * *
  
```

6. Write an algorithm, draw a flowchart and develop a VB.NET console application to check a number is palindrome or not.
7. Write an algorithm, draw a flowchart and develop a VB.NET console application to calculate the binary number from decimal number.

8. Write an algorithm, draw a flowchart and develop a VB.NET console application to check a given number is prime or unprimed.
9. Write an algorithm, draw a flowchart and develop a VB.NET console application to calculate the reverse of a string and check the string is palindrome or not.
10. Write an algorithm, draw a flowchart and develop a VB.NET console application to Search an element from characters and as well as from numbers using linear search method.
11. Write an algorithm, draw a flowchart and develop a VB.NET console application to sort a given string in the order of alphabets, digits & symbol.
12. Write an algorithm, draw a flowchart and develop a VB.NET console application to input array element, sorting them using bubble sort method.
13. Write an algorithm, draw a flowchart and develop a VB.NET console application to create jagged array.
14. Write an algorithm, draw a flowchart and develop a VB.NET console application to demonstrate exception handling.
15. Write an algorithm, draw a flowchart and develop a VB.NET windows application to check the user id and password is valid or not.
16. Write an algorithm, draw a flowchart and develop a VB.NET windows application to create a calculator.
17. Write an algorithm, draw a flowchart and develop a VB.NET windows application to create notepad.
18. Write an algorithm, draw a flowchart and develop a VB.NET windows application to demonstrate MDI form.
19. Write an algorithm, draw a flowchart and develop a VB.NET windows application to create a start menu using status bar.
20. Write an algorithm, draw a flowchart and develop a VB.NET windows application to create a menu and perform any operation.
21. Write an algorithm, draw a flowchart and develop a VB.NET windows application to create MDI and arrange all forms as tiles and cascade form.
22. Write an algorithm, draw a flowchart and develop a VB.NET windows application to create popup menu.
23. Write an algorithm, draw a flowchart and develop a VB.NET windows application to create data bound control for retrieving the data from database.
24. Write an algorithm, draw a flowchart and develop a VB.NET windows application to create different dialog box and perform any operation.

BCCA Part – III

Semester – VI

Paper – I

70: C#.Net (6T1)

UNIT - I

Introducing C# - What is C#? Evaluation of C#, Characteristics of C#, Application of C#, how does C# differ from C++? How does C# differ from Java?

Understanding .NET: The C# Environment – The .NET Strategy, The Origin of .NET Technology, The .NET Framework, The Common Language Runtime, Framework Base Class, User and Program Interface, Visual Studio .NET, .NET Languages, Benefits of the .NET Approach, C# and

.NET. **Overview of C#** - Introduction, A Simple C# Program, Namespaces, Adding Comments, Main Running Value, Using Aliases for Namespaces Classes, Passing String Objects to WriteLine Method, Command Line Argument, Main with Class, Providing Interactive Input, Using Mathematical Function, Multiple Main Methods, Compile Time Error, Program Structure, Program Coding Style.

Literals, Variables and Data Types – Introduction, Literals, Variables, Data Types, Value Types, Reference Type, Declaration Types, Initialization of Variables, Default Value, Constant Variable, Scope of Variables, Boxing and Unboxing. **Operators and Expressions** – Introduction, Arithmetic Operators, Relational Operators, Logical Operators, Assignment Operators, Increment and Decrement Operators, Conditional Operators, Bitwise Operators, Special Operators, Arithmetic Expressions, Evaluation of Expressions, Precedence of Arithmetic Operators, Type Conversion, Operator Precedence and Associativity, Mathematical Function.

UNIT - II

Decision Making and Branching – Introduction, Decision Making with if Statement, Simple if Statement, The if...else Statement, The else if Ladder, The Switch Statement, The ? : Operator, Decision Making and Looping – Introduction, The while Statement, The do Statement, The for Statement, The foreach Statement, Jumps in Loops. **Methods in C#** - Introduction, Declaring Methods, The Main Method, Invoking Methods, Nesting of Methods, Method Parameters, Pass by Value, Pass by Reference, The Output Parameters, Variables Argument List, Methods Overloading. **Handling Arrays** – Introduction, One-Dimensional Array, Creating an Array, Two-Dimensional Array, Variable-Size Arrays, The System.Array Class, ArrayList Class. **Manipulating Strings** – Introduction, Creating String, String Methods, Inserting String, Comparing String, Finding String, Mutable String Arrays of String, Regular Expressions.

UNIT - III

Structures and Enumerations – Introduction, Structure, Structs with Methods,

Nested Structs, Difference between Classes and Structs, Enumerations, Enumerator Base Type, Enumerator type Conversion. **Classes and Objects** - Introduction, Basic Principle of OOP, Defining a Class, Adding Variables, Adding Methods, Member Access Modifiers, Creating Objects, Accessing Class Members, Constructors, Overloaded Constructors, Static Members, Static Constructors, Private Constructors, Copy Constructors, Destructors, Member Initialization, The This Reference, Nesting of Members, Constant Members, Read-only Members, Properties, Indexers. **Inheritance and Polymorphism** – Introduction, Classical Inheritance, Containment Inheritance, Defining a Subclass, Visibility Control, Defining Subclass Constructors, Multilevel Inheritance, Hierarchical

Inheritance, Overriding Methods, Hiding Methods, Abstract method, Sealed Class: Preventing Inheritance, Sealed Methods, Polymorphism.

UNIT - IV

Interface: Multiple Inheritances – Introduction, Defining an Interface, Extending Interface, Implementing Interface, Interface and Inheritance, Explicit Interface Implementation, Abstract Class and Interface. **Operator Overloading** – Introduction, Overloadable Operators, Need for Operator Overloading, Defining Operator Overloading, Overloading Unary Operator, Overloading Binary Operator, Overloading Comparison Operator. **Managing Errors and Exceptions** – Introduction, What is Debugging?, Types of Errors, Exceptions, Syntax of Exception Handling Code, Multiple Catch Statements, The Exception Hierarchy, General Catch Handler, Using Finally Statement, Nested Try Blocks, Throwing Our Own Exceptions, Checked and Unchecked Operators, Using Exceptions for Debugging.

Paper - II
71: Python (6T2)

UNIT - I

Getting Started -Introducing python, Installing python on windows, Installing python on Linux, Meeting the interpreter, Writing your first program, Employing variables, Obtaining user input, Correcting Errors. **Performing operations**-Doing arithmetic, Assigning values, Comparing Values, Assessing logic. , Examining Conditions, Setting precedence, casting data types, Manipulating bits. **Making statements** -Writing lists, Manipulating lists, Restricting lists, associating list elements, Branching with if, Looping while true, Looping over items, Breaking out of loops.

UNIT - II

Defining Functions-Understanding scopes, Supplying arguments, Returning Values, Using callbacks, Adding placeholders, producing generators, Handling exceptions, Debugging assertions. **Importing Modules** - ,Storing functions, Owning function names, Interrogating the system, Performing mathematics, Calculating decimals, Telling the time, Running a timer, Matching patterns.

UNIT - III

Managing strings -Manipulating strings, Formatting strings, Modifying strings, Accessing files, Reading and writing files, Updating file strings, Pickling data **Programming objects**, Encapsulating data, Creating instance objects, Addressing class attributes, Examining built-in attributes, Collecting garbage, Inheriting features, Overriding base methods, Harnessing polymorphism.

UNIT - IV

Processing requests-Sending responses, Handling values, Submitting forms, Providing text areas, Checking boxes, Choosing radio buttons, Selecting options, Uploading files **Building interfaces**-Launching a window, Responding to buttons, Displaying messages, Gathering entries, Listing options, Polling radio buttons, Checking boxes, Adding images **Developing applications**- Generating random numbers, Planning the problem, Designing the interface, Assigning static properties, Initializing dynamic properties, Adding runtime functionality, Testing the program, Freezing the program, Deploying the application.

Paper – III

72: Entrepreneurship Development (6T3)

UNIT - I

Entrepreneurs: Introduction, Evolution of the concept of Entrepreneur, Characteristics of successful Entrepreneurs, The charms of becoming Entrepreneur, The Entrepreneurial decision process, Functions of Entrepreneur, Need of Entrepreneur, Types of Entrepreneurs, Distinction between an Entrepreneur and a Manager, Entrepreneur, social Entrepreneur **Entrepreneurship:** Concept of Entrepreneurship, Growth of Entrepreneurship in India, Role of Entrepreneurship in economic development. **Women Entrepreneurship:** Concept of women Entrepreneur, Functions of women Entrepreneurs, Growth of women Entrepreneurship in India, Problems of women Entrepreneurs, Developing women Entrepreneurship. **Rural Entrepreneurship:** Meaning of rural Entrepreneurship, Need of rural Entrepreneurship, Rural Entrepreneurship/ Industrialization in retrospect, Problems of rural Entrepreneurship, How to develop Rural Entrepreneurship? **Tourism Entrepreneurship:** Meaning of tourism Entrepreneurship, The perspective, Tourism enterprise, Entrepreneur and Entrepreneurship, Policy Measures of Tourism Entrepreneurship in India.

UNIT - II

Agri-Preneurship: Introduction, Need for developing Agri-Preneurship in India, Opportunities for developing Agri-Preneurship, Challenges involved in developing Agri- Preneurship. **Social Entrepreneurship:** Introduction, Meaning of Social Entrepreneurship, the Perspective of Social Entrepreneurship. **Family Business:** Introduction, Manning of family business, Types of family business, family business in India: A Historical Perspective, Advantages of family business, Disadvantages of family business, Major challenges faced by family business in India. **Factors affecting Entrepreneurship growth:** Factors affecting Entrepreneurship, Government Actions.

Entrepreneurial Motivation: Meaning of Entrepreneurial Motivation, Motivational Cycle or Process, Theories of Entrepreneurial Motivation. **Entrepreneurial Competencies:** Meaning of Entrepreneurial Competency, Major Entrepreneurial Competencies, Developing Entrepreneurial Competencies.

UNIT - III

Entrepreneurship Development Programmes (EDPs): Meaning of EDP, Need of EDPs, Objectives of EDPs, Entrepreneurship Development Programmes in India: A Historical Perspective, Course contents and curriculum of EDPs, Phase of EDP, Evaluation of EDPs, and Problems of EDPs. **Micro and small enterprises:** Small enterprise: Meaning & Definition, Micro & Macro units, Essentials, features & Characteristics, Relationship between Micro and Macro enterprises, Rationale behind Micro & small enterprises, Scope of Micro and Small Enterprises, Objectives of Micro enterprises, Enterprise & Society, Role of Micro enterprise in economic development, Quick Estimates of 4th All India Census of MSME, Package for promotion of Micro and Small-scale enterprise. **Opportunity Identification and Selection:** Need for Opportunity Identification and Selection, Environmental dynamics and change, Business opportunities in various sectors, Identification of business opportunity, Opportunity selection, Steps in setting up of a small business enterprise. For

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Off. Principal,
S.S. Manjar College, Nagpur

of Business Plans: Meaning of business plan, Contents of business plan, Significance of business plan, Formulation of business plan, Planning Commission's Guidelines for formulating Project report 310, Network Analysis, Common Errors in business plan formulation.

UNIT - IV

Project Appraisal: Concept of Project Appraisal, Methods of Project Appraisal, and Environmental clearance of SMEs. **Financing of Enterprise:** Meaning and need for financial planning, Source of Finance, Capital Structure, Capitalization, Term Loans, Sources of short-term Finance, Venture Capital, Export Finance. **Forms of business Ownership:** Sole Proprietorship, Partnership, Company, Cooperative, And Selection of an appropriate form of ownership structure, Ownership Pattern in Micro-sale Enterprise

in India: The Empirical Evidence. **Institutional Finance of entrepreneurs:** Need for institutional finance, Institutional Finance. **Institutional Support to Entrepreneurs:** Need for institutional support, Institutional Support to small Entrepreneurs.

73:Practical

Practical List of C#.NET

1. Write an algorithm, draw a flowchart and develop a C#.Net console application to check whether the entered number is even or odd.
2. Write an algorithm, draw a flowchart and develop a C#.Net console application to develop Boxing and Unboxing concept.
3. Write an algorithm, draw a flowchart and develop a C#.Net console application to calculate the reverse of a number, to check the given number is palindrome or not.
4. Write an algorithm, draw a flowchart and develop a C#.Net console application to print the Following Pattern:

```
      1
     1 2
    1 2 3
   1 2 3 4
  1 2 3 4 5
 1 2 3 4
1 2 3
1 2
1
```

5. Write an algorithm, draw a flowchart and develop a C#.Net console application to display the following pattern-

```
          *
        * * *
       * * * *
      * * * * *
     * * * * *
    * * * * *
   * * * * *
  * * * * *
 * * * * *
```

6. Write an algorithm, draw a flowchart and develop a C#.Net console application to Print and evaluate the following series. The series is -----
 $\text{Sum} = (1) + (x^{2/2!}) + (x^{4/4!}) + (x^{6/6!}) + (x^{8/8!}) + \dots$
7. Write an algorithm, draw a flowchart and develop a C#.Net console application to perform ascending order sorting using Jagged Array.
8. Write an algorithm, draw a flowchart and develop a C#.Net console application to find out the largest and smallest number from an array using jagged array.
9. Write an algorithm, draw a flowchart and develop a C#.Net console application to print abbreviation form of Name.
10. Write an algorithm, draw a flowchart and develop a C#.Net console application to count number of characters, words and blank spaces of given sentence.
11. Write an algorithm, draw a flowchart and develop a C#.Net console application to withdraw, deposit & transfer money to the account using method overloading.
12. Write an algorithm, draw a flowchart and develop a C#.Net console app

overload unary operator '-' and perform subtraction operation.

13. Write an algorithm, draw a flowchart and develop a C#.Net console application to overload binary operator '+' and perform addition operation between two complex numbers.
14. Write an algorithm, draw a flowchart and develop a C#.Net console application to implement the concept of constructor overloading.
15. Write an algorithm, draw a flowchart and develop a C#.Net console application to implement the concept of hierarchical inheritance.
16. Write an algorithm, draw a flowchart and develop a C#.Net console application to implement the concept of interface.
17. Write an algorithm, draw a flowchart and develop a C#.Net console application to combine two delegates.
18. Write an algorithm, draw a flowchart and develop a C#.Net console application to display the priority of the thread.
19. Write an algorithm, draw a flowchart and develop a C#.Net console application to convert feet to inches using Delegates.
20. Write an algorithm, draw a flowchart and develop a C#.Net console application to copy the contents from one file to another file.

Practical List of Python

1. Write a Python program to convert the given temperature from Fahrenheit to Celsius and vice versa depending upon user's choice.
2. Write a Python program that allows the user to enter any integer base and integer exponent, and displays the value of the base raised to that exponent.
3. Write a Python program that prompts the user for a certain number of cities for the Travelling salesman Problem, and displays the total number of possible routes that can be taken.

Write a Python program th

4. at prompts the user to enter an upper or lower case letter and displays the corresponding Unicode encoding.
5. Write a Python program to calculate total marks, percentage and grade of a student. Marks obtained in each of the three subjects are to be input by the user. Assign grades according to the following criteria:
Grade A: Percentage ≥ 80
Grade B: Percentage ≥ 70 and < 80
Grade C: Percentage ≥ 60 and < 70
Grade D: Percentage ≥ 40 and < 60
Grade E: Percentage < 40
6. Write a Python program to find the area of rectangle, square, circle and triangle by accepting suitable input parameters from user using user-defined function.
7. Write a Python program to display the Fibonacci series in a given range.

8. Write a Python program to Print and evaluate the following series. The series is --
Sum = $(x) - (x^2/2!) + (x^3/3!) - (x^4/4!) + (x^5/5!) - \dots$
9. Write a Python program to calculate the subtraction of two compatible matrices.
10. Write a Python program to calculate the addition of diagonal elements of a matrix.
11. Write a Python program to search a given string from the list of strings using recursion.
12. Write a Python program to calculate factorial of a given number using recursion.

Visual Python

13. Write a Python program to create mathematical 3D objects –
 - I. curve
 - II. sphere
 - III. cone
 - IV. arrow
 - V. ring
 - VI. cylinder.
14. Write a Python program to read n integers and display them as a histogram.
15. Write a Python program to display sine and cosine curves.
16. Write a Python program to plot a graph of people with pulse rate p vs. height h. The values of p and h are to be entered by the user.
17. Write a Python program to calculate the mass m in a chemical reaction. The mass m (in gms) disintegrates according to the formula $m=60/(t+2)$, where t is the time in hours. Sketch a graph for t vs. m, where $t \geq 0$.
18. A population of 1000 bacteria is introduced into a nutrient medium. The population p grows as follows:

$$P(t) = (15000(1+t))/(15 + e^t)$$
 Where the time t is measured in hours. Write a Python program to determine the size of the population at given time t and plot a graph for P vs t for the specified time interval.
19. Input initial velocity and acceleration, and plot the following graphs depicting equations of motion:
 - I. velocity wrt time ($v=u+at$)
 - II. distance wrt time ($s=u*t+0.5*a*t*t$)
 - III. distance wrt velocity ($s=(v^2-u^2)/2*a$)
20. Write a Python program show a ball bouncing between 2 walls.

74:Project

Bachelor of Business Administration (BBA) Semester –I

75 – 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.

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

76 – 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.

77 – 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).

78– 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.

Bachelor of Business Administration (BBA)

Semester – II

79 – 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.

80– 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 Book-keeping 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.

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

82 - 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 MeeraBanerji (Trinity)
2	UNIT II	Business Communication • Memorandum Writing • Notice, Agenda and Minutes	1. Developing Communication Skills by Krishna Mohan and MeeraBanerji (Trinity)
		• Writing Advertisements for: Rent, Sale, Situations Vacant	2. Write Right by SaritaManuja (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	Prescribed text : <i>Golden Harvest</i> by Orient BlackSwan
		Exam Results: Manish Sabharwal • The Thief: Ruskin Bond	
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

Bachelor of Business Administration (BBA)

Semester – III

83 – 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

Note: Simple Numerical will be based on Unit III and IV only.

BBA Sem III

84 – 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.

Numerical shall be based on Unit II, Unit III, and Unit IV

85 – 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. 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.

86 – 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.

Bachelor of Business Administration (BBA) Examination

Semester – IV

87 – 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.

88 – Money, Banking and 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.

89 – 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, 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 Non-verbal Cues, Group stereotypes, Central Traits; Primary and Recency Effects; Models of Information Integration; Attribution of Causality: Biases and Theories (Jones and Davis, Kelley).

90 – Business Legislations

Unit I: Administration of law & legal system in India - Introduction to legal aspects of Business in general; Freedom of Trade, Profession and Occupation (Constitutional Provisions).

Unit II: Indian Contract Act (1872) - a) Definition (Sec.2) b) Essential elements of a valid contract c) Competency to enter in contracts (Sec. 11 & 12). d) Consent – Free consent, Coercion, undue influence, fraud, misrepresentation, mistake (sec 13-23). Void Agreement (sec 24-30) f) Consequences of breach of contract (sec 73-75).

Unit III: The Companies Act (1956) - Definition & characteristics of a company, Company distinguished from partnership, Kinds of Companies, Provisions relating to incorporation, lifting the Corporate Veil. Memorandum of Association, Doctrine of ultra-vires, Articles of Association, Doctrine of indoor management & constructive notice, Concept of Prospectus. **Company Management And Board Meeting** : Administrative Hierarchy, Board of Director – Director- Legal Position, Appointment, Qualification, Disqualification, Removals Power, duties, Liabilities etc. Managing Director – Meaning, Appointment, and Disqualification. Manager-Meaning, Disqualification. Company Meetings Meaning of meeting-General Body meeting – statutory Meeting, Annual General meeting, Extra ordinary meeting Board Meeting.

Unit IV: The Consumer Protection Act, 1986 Salient features of Act. Definitions- Consumer, Complaint, Services, Defect and Deficiency, Complainant. Rights and Reliefs available to consumer. Procedure to file complaint. Consumer Disputes Redressal Agencies. (Composition, Jurisdiction, Powers and Functions.) Procedure followed by Redressal Agencies. Introduction to GST

Bachelor of Business Administration (BBA) Examination Semester – V

91 – Entrepreneurship Development

Unit I: Entrepreneur & Entrepreneurship: Evolution of the concept of Entrepreneurs, Characteristics of an Entrepreneur, Distinction between an entrepreneur and a manager; functions of an entrepreneur, types of entrepreneurs, concept of intrapreneurs; growth of entrepreneurship in India, role of entrepreneurship in economic development.

Unit II: Entrepreneurial growth: Factors - Economic factors, non-economic factors, Government actions; Entrepreneurial competencies – meaning, major competencies, developing competencies; Entrepreneurship Development Programs (EDPs) - Need, objectives, course content of EDPs, phases

of EDPs, evaluating EDPs.

Unit III: Small Enterprises: An introductory framework: Definition, characteristics, relationship between small and large units, rationale, objectives, scope, opportunities for entrepreneurial career, problems of SSIs; Project Identification and Selection (PIS) - Meaning of project, project identification, project selection, contents of project reports, formulation of project reports; Project Appraisal - Concept, methods, economic analysis, financial analysis, market analysis, technical feasibility, managerial competence.

Unit IV: Institutional & financial support to Entrepreneurs: Need for institutional support, various institutions supporting entrepreneurship in India – MIDC, MSME, MCED, DIC, SSIB, MSSIDC, BIFR; Financial support to entrepreneurs: Commercial banks, other financial institutions – IDBI, IFCI, SFCs, SIDBI, venture capital.

92– Principles of Operations Management

Unit I: Introduction to Operations Management: Introduction to Operations Management, its Nature, Scope, Importance and Functions. Difference between production, manufacturing and service. Concept and types of production, mass, job-based, batch and assembly line production system. Types of services.

Unit II: Facilities and Production Planning : Factors affecting plant location, types of plant layouts – product layout, process layout, fixed position layout, cellular layout, types of service layouts. Concept of production planning, definitions of capacities, master production schedule, material planning. Introduction to maintenance.

Unit III: Material Management: Scope of materials management, Purchase and Stores Functions, Introduction to warehouse management, Concept of Lead time, re-order level, minimum and maximum stock, Basic concepts of Inventory management, inventory costs, ordering and carrying cost.

Unit IV: Quality Management and Productivity: Introduction to quality, dimensions of quality, concept of product, process and service quality. Introduction to Quality Management System, concept of TQM, ISO, Kaizen, Quality circles, Six-sigma. Concepts of productivity, machine, labour and cost productivity.

93 – International Business Environment

Unit I: Introduction to International Business: Importance, nature and scope of International business; Modes of entry into International Business; Internationalization process and managerial implications; Issues in foreign investments, technology transfer, pricing and regulations; International collaborative arrangements and strategic alliances; Concept and significance of balance of payments account

Unit II: International Business Environment: Economic, Political, Cultural and Legal environments in International Business. Framework for analyzing international business environment.

Unit III: Global Trading and Investment Environment: World trade in goods and services – Major trends and developments; World trade and protectionism – Tariff and non-tariff barriers; Foreign investments-Pattern, Structure and effects; Movements in foreign exchange and interest rates and their impact on trade and investment flows.

Unit IV: International Economic Institutions and Agreements: WTO, WTO and Developing Countries, IMF, World Bank, UNCTAD, International commodity trading and agreements. Structure and functioning of EC and NAFTA, Regional Economic Groupings in Practice: Levels of Regional Economic Integration; Regionalism vs. Multilateralism; Important Regional Economic Groupings in the World.

94 – Research Methodology

Unit I: Introduction - Meaning, Objectives and Types of research, Research Approach, Research Process, Relevance & scope of research in management. **Research Design** - Features of good Design, Types of Research Design,

Unit II: Sampling Design - Steps in sample Design, Characteristics of a good sample Design, Probability & Non Probability sampling. Hypothesis – Meaning, Types, Process, Formation of Hypothesis, Testing of Hypothesis

Unit III: Measurement & scaling techniques - Errors in measurement. Test of sound measurement, Scaling and scale construction technique. Attitude Measurement and Scales: Introduction to attitude - Various Methods to measure attitude.

Unit IV: Methods of data collection - Primary data – questionnaire and interviews; Collection of secondary data. **Interpretation of data** - Techniques of Interpretation, Report writing, Layout of a project report, preparing research reports.

Bachelor of Business Administration (BBA)

Semester – VI

Human Resource Management Paper 1

95 – Fundamentals of Human Resource Management

Unit 1 :Introduction: Concept, HRM ; Evolution of HRM; Challenges of HRM; Role of Human Resource Management in strategic management, Characteristics of Workforce today

Unit 2 : Performance Appraisal :Concept and Introduction, Importance, process – methods of performance appraisal – Traditional & Modern Methods.

Unit 3 : Job Evaluation & Compensation management: Concept, objectives and methods of Job Evaluation, Wages & Salary, components of employee remuneration – – base and supplementary. Wages & Salary Administration

Unit 4 : Legal Aspects :Introduction to Provident Fund Act, Employee State Insurance Corporation Act, Minimum Wages Act, Industrial Relations Act, Industrial Dispute Act.

Paper 2

Human Resource Management Paper 1

96 – Advanced Human Resource Management

Unit 1 : Job Analysis, Job Design & Job Evaluation: Job Analysis & Design - Job Analysis – Meaning, Uses, Competency approach to job analysis, Job Description, Job Specifications & Role Analysis, Factors affecting Job Design, Techniques of Job Design, Cases and Exercises in understanding Job Analysis. Job Evaluation –Concept, objective & methods.

Unit 2:Performance Appraisal: Nature, Objectives of Performance Appraisal, Performance Planning and Potential Appraisal, Pitfalls of Appraisal, Praise and Recognition; Rewards and Incentives; Promotions. HR Records, MIS HR Reports, HR Formats – Personnel Files, Attendance, Leave, Medical Records.

Unit 3 : Industrial Relations :Nature, Concept, scope, objectives & significance of Industrial Relations, Trade unions, Functions of Trade Unions - Forms of collective bargaining - Workers”

participation in management, Nature & causes of Industrial Dispute and Settlement of Industrial Disputes.

Unit 4 : Ancillary Topics: Goal Setting, Promotions and Transfers; Separations- Retirement, VRS, Deputation, Death, Retrenchment, Pink Slips, Competency Mapping, Employee Manual / PPP Handbook. Concept of Retention and Attrition. Online recruitment; Employee referrals; Recruitment process outsourcing Head hunting; Downsizing; Voluntary retirement schemes (VRS) HR outsourcing, Job Rotation & Transfer

97:Project

B.C.A. Part I Semester-I

98:Compulsary English

Semester I

Theory : (Full marks 60)

Internal Assessment : (15 marks)

Prescribed Textbook : Life and Language by Board of Editors

(Dr. Sunilkumar Navin, Dr. Kartik Panicker, Dr. Nitin Akhuj,
Dr. Rini Dwivedi, Dr. Goldie Baghmar, Dr. Radheshyam Dipte,
Dr A.A.Khan & Dr. R.P.Singh)
(Published by Oxford University Press)

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

Recommended books for Unit III & IV :

1. Macmillan Foundation English (Macmillan) by R.K.Dwivedi & A.Kumar
2. Learners' English Grammar and Composition (S.Chand) by N.D.V.Prasada Rao
3. Grammar and Composition For Communication by Sagarmal Gupta and Alpana Gupta (Orient BlackSwan)

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B.C.A. Part I Semester I

99:Supplementary English

Semester - I

Theory Examination - Full Marks : 60

Internal Assessment – Full Marks : 15

Theory

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

Recommended Book for Units III & IV : Macmillan Foundation English by R.K.Dwivedi & A.Kumar (Macmillan)

Internal Assessment: The teacher should give regular assignments to students on the basis of the items prescribed in Units I, II, III & IV. These assignments should be submitted by the students for evaluation. This record of assignments should be produced by the students at the time of the Internal Assessment conducted towards the end of the Semester.

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B.C.A. Part I Semester I 100:Hindi

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 ब्लैकस्वॉन
प्रथम इकाई : (अ) निबंध :- समसामायिक विषय (ब) मुहावरे	15
द्वितीय इकाई : गद्य (1) ईदगाह (2) गुण्डा (3) परदा (4) जिंदगी और जॉक (5) मै हार गई	15
तृतीय इकाई : पद्य (1) तोडती 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	15

B.C.A. Part I Semester I 101:Marathi

<u>Syllabus</u>			
s: B.SC (IT), B.C.A. I ST SEM.		Subject: MARATHI	
Unit	Particulars	From	To
1	वर्तमानकालीन सामाजिक, पर्यावरण विषयावर आधारित निबंध (दोन पैकी एक)	(12)	गुण
2.	गद्य विभाग 1) शेतकऱ्यांवित्तरी - म. जोतीबा फुले 2) स्टीमरमध्ये - म. गांधी 3) विज्ञान शाप की वस्तु - द. के. केळकर 4) ज्ञान - साने गुरुजी 5) खंडेरावचे संशोधन - भालचंद्र नेमाडे	(15)	गुण
3.	पद्य विभाग 1) दुरितांचे तिमिर जावो - संत ज्ञानेश्वर 2) वृमवल्ली आम्हां सोयरे - संत तुकाराम 3) आम्ही कोण ? - केशवभुत 4) कशाला पंढरी जातो ? - राष्ट्रसंत तुकडोजी महाराज 5) आहे बुद्धीशी इमान - वा. सी. मर्ढेकर	(15)	गुण
4.	1) म्हणींचा अर्थ सांगून वाक्यात उपयोग करा 2) सारांश 3) कार्यालयीन पत्र 4) इंग्रजीच्या उताऱ्याचे मराठीत भाषांतर करा 5) शुद्धलेखन	(62) (04) (04) (04) (04)	गुण गुण गुण गुण गुण

B.C.A. Part I Semester I
Paper I
102: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.

Reference Books:

1. Information technology concepts by Dr. Madhulika Jain, Shashank & Satish Jain, [BPB Publication, New Delhi.]
2. Fundamentals of Information Technology By Alexis And Mathews Leon [Leon Press, Chennai & Vikas Publishing House Pvt Ltd, New Delhi]

B.C.A. Part I Semester I

Paper II

103:‘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.

Reference Books:

1. The Art of programming through flowcharts & algorithm by Anil B. Chaudhari Firewall Media, Laxmi publication, New Publication.
2. Programming in C by E. Balagurusamy TMH Publications.
3. C Programming - Kernighen Ritchie
4. Programming with C – Y. Kanetkar.
5. C Programming – Holzner, PHI Publication.
6. Programming in C – Ravichandran.

B.C.A. Part I Semester I
Paper III
104: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.

Reference Books:

- 1.S Sastry Introduction to Numerical Analysis
- 2.Y. Rajaraman, Computer Oriented Numerical Methods - Prentice Hall Publication
- 3.Gupta and Kapoor Fundamental of Mathematical Statistics
- 4.Brian Flowers Introduction to Numerical Methods in C++ By. (Oxford)
- 5.E. Balaguruswamy, Numerical Methods - Tata McGraw Hill Publication
- 6.Srimanta Pal Numerical Methods (Oxford)
- 7.K Sankara Rao Numerical Methods for Scientists & Engineers [PIII].
- 8.Manish Goyal Computer Based Numerical And Statistical Techniques (Laxmi)

105: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.

Reference Books:

1. Discrete Mathematical Structures with applications to computer Science By J,P.Tremblay & R. Manohar, (TMH)
2. Discrete Mathematical Structures by Kolman Busby and Ross (pearson)
3. Discrete Mathematics By Norman Biggs. (Oxford).
4. Logic and Discrete Mathematics : Grassmann, Tremblay (Pearson)
5. Introduction to Automata Theory, Languages, and computation :Hopcroft, Motwani and Ullman(Pearson)
6. An introduction to the theory of computer science , languages and machines : Sudkamp
7. Kenneth H Rosen Discrete Mathematics & it's Applications TMH

B.C.A. Part I Semester I
Paper V
106: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 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.

Reference Books:

1. Operating Systems by P. Balakrishna Prasad [Scitech Publication]
2. Operating System Concept : Silbershaz (Addision Education)
3. Operating Systems - H.M. Deitel - Addision Wesley.
4. Operating Systems- John J. Donovan.
5. Operating System : A.S.Godbole (TMH)
6. Modern Operating Systems : Tenenenbaum (Pearson Education)
7. Operating System : Peterson.

Paper VI

107: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.

Reference Books:

1. MS Office XP for Everyone By Sanjay Saxena (Vikas Publi, Noida)
2. MS-Office 2000(for Windows) By Steve Sagman
3. A First Course in Computers – Sanjay Saxena

108:Practical-I

109:Practical-II

110:Practical-III

111:Compulsary English

Semester – II

Theory : (Full Marks 60)

Internal Assessment : (15 marks)

Prescribed Textbook : Life and Language by Board of Editors

(Dr. Sunilkumar Navin, Dr. Kartik Panicker, Dr. Nitin Akhuj,
Dr. Rini Dwivedi, Dr. Goldie Baghmar, Dr. Radheshyam Dipte,
Dr A.A.Khan & Dr. R.P.Singh)
(Published by Oxford University Press)

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.
(Words shall be from the prescribed lessons.)

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112:Supplementary English

Semester II

Theory Examination - Full Marks : 60

Internal Assessment – Full Marks : 15

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)

Recommended Book : Macmillan Foundation English by R.K.Dwivedi & A.Kumar
(Macmillan)

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Semester-II
113:Marathi

IIND IVTH Sem

Syllabus

Subject : Marathi

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

Unit	Particulars	From
1	निबंध (200 शब्दात) ① विज्ञानावर आधारित ② कल्पकतेवर - 11 -	(12)
2.	गद्य विभाग ⑥ सत्य कुणीही शोधू शकते - ब्याम मनोहर ⑦ ज्ञानदेवे रचिला पाया - सदानंद मोरे ⑧ विवेकवादी आणि विज्ञाननिष्ठ : संत तुकाराम - किशोर शानप ⑨ स्त्री-पुरुष स्वातंत्र्याची गोष्ट - अरुणा सबाणे 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 वेगा - संजीवनी लडेगावकर	(15)
4.	① वाक्प्रचाराचा अर्थ सांगून वाक्यात उपयोग करा. ⑧ ② शुद्धलेखन ③ ③ सारांश ④ ④ पत्र ④ ⑤ माहितीचा अधिकार ④ = (18)	

114:Hindi Semester-II

BSc/BBA निर्धारित पाठ्यपुस्तक : III Sem

साहित्य सरीता
सम्पादक -जोगेन्द्रसिंह बिसेन
प्रकाशक-ओरियंट ब्लैकस्वॉन

प्रथम इकाई : (अ) निबंध :- (1) विज्ञान 2) कल्पानाशील विषय (ब) लोकोक्ति	12 03
द्वितीय इकाई : गद्य (1) ढाई आखर प्रेम का (2) वापसी (3) इमाम साहब (4) सलाम (5) छप्पन तोले का करधन	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

प्रश्नपत्र का प्रारूप एवं अंक विभाजन

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B.C.A. Part I
Semester II
Paper I

115: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.

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.

Reference Books:

1. Mastering C++ by K R Venugopal Tata McGraw-Hill , New Delhi.
2. The C++ Programming Language –Bjarne Stroustrup
3. Programming with C++ - Ravichandran
4. Programming with C++ - Robert Lafore
5. Object Oriented Programming with C++ by E. Balagurusamy, McGraw Hill

B.C.A. Part I
Semester II
Paper II

116: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.

Reference Books:

1. Information Systems Analysis, Design and Implementation By K. M. Hussain Donna Hussain [Tata McGraw-Hill Publishing Company Ltd, New Delhi]
2. Fundamentals of Software Engineering by Rajib Mall [PHI Publication]
3. Workbook on Systems Analysis & Design by V. Garg [PHI Publication]
4. System Analysis and Design- Don Yeates, shiebls, Helmy (M).
5. System Analysis & Design - Edward –TMH
6. System Analysis and Design – Satzinger, Robert Jackson and Stephen Burd, Thomson Learning
7. Introduction to Systems Analysis Design, Igor Hawryszkiewicz, PHI

B.C.A. Part I
Semester II
Paper III

117: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-

Reference Books:

- 1.S Sastry Introduction to Numerical Analysis
- 2.Y. Rajaraman, Computer Oriented Numerical Methods - Prentice Hall Publication
- 3.Gupta and Kapoor Fundamental of Mathematical Statistics
- 4.Brian Flowers Introduction to Numerical Methods in C++ By. (Oxford)
- 5.E. Balaguruswamy, Numerical Methods - Tata McGraw Hill Publication
- 6.Srimanta Pal Numerical Methods (Oxford)
- 7.K Sankara Rao Numerical Methods for Scientists & Engineers [PIII].
- 8.Manish Goyal Computer Based Numerical And Statistical Techniques (Laxmi)

B.C.A. Part I
Semester II
Paper IV

118: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, Labeled trees, Undirected trees.

Reference Books:

1. Discrete Mathematical Structures with applications to computer Science By J,P.Tremblay & R. Manohar, (TMH)
2. Discrete Mathematical Structures by Kolman Busby and Ross (pearson)
3. Discrete Mathematics By Norman Biggs. (Oxford).
4. Logic and Discrete Mathematics : Grassmann, Tremblay (Pearson)
5. Introduction to Automata Theory, Languages, and computation :Hopcroft, Motwani and Ullman(Pearson)
6. An introduction to the theory of computer science , languages and machines : Sudkamp
7. Kenneth H Rosen Discrete Mathematics & it's Applications TMH

B.C.A. Part I
Semester II
Paper V

119: 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 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.

Reference Books:

1. SAMS Teach Yourself Linux by Craig and Coletta Witherspoon [Techmedia]
2. LINUX complete reference by Richard Peterson

B.C.A. Part I
Semester II
Paper VI
120: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.

Reference Books:

01. E-Commerce, Strategy, Technologies and Applications By: David Whiteley Tata McGraw-Hill Edition.

121:Practical-I

122:Practical-II

123:Practical-III

B.C.A. Part II
Semester III
Paper I
124:VISUAL BASIC 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.

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.

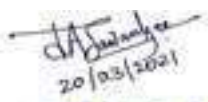
Using DAO: Creating Search Programs, Numeric Search and Complex Search Programs.

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.

Reference Books:

1. VISUAL BASIC – to Advance by Soma Dasgupta [BPB Publication]
2. Evangelos Petroustos, Mastering Visual Basic 6.0 BPB Publication.
3. VISUAL BASIC 6 COMPLETE REFERENCE (TMH PUB)
4. Visual Basic 6 Deitel & Deitel (Pearson Education)
5. Mastering VB 6.0 Black Book -Peter - Norton-Techmedia.


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B.C.A. Part II
Semester III
Paper II
125:DATA BASE 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.

Reference Books:

1. Data Base System Concepts By A SilbersChatz By Henry Korth And S.Sudarshan [Mcgraw-Hill ltd. New Delhi] 3rd Edition.
2. Introduction to Data Base Management by NAVEEN PRAKASH [Tata McGrawHill ltd.]
3. Bipin C. Desai, An Introduction to Database Systems, Galgotia Publications.
4. Raghu Ramakrishnan & Johannes Gerhrke, "Data Base Management Systems", Mc Graw Hill International Edition, 2000
5. Muzumdar, Introduction to Database Management Systems. TMH

B.C.A. Part II
Semester III
Paper III
126: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 : BFS, DFS Method.

Reference Books:

1. Classical Data Structures : D. Samanta. PHI, New Delhi.
2. DATA STRUCTURE : LIPSCTUZ SCHUM OUTLINE SERIES
3. Data structure Using C++ : Y. Kanetkar
4. Data Structures Using C++: Tennenbaum
5. Data structures by Tremblay Sorenson
6. Data structures by Bhagat singh Naps

B.C.A. Part II
Semester III
Paper IV

127:OPERATIONS RESEARCH – I

UNIT - I :

Introduction to Operation Research (OR) Origin and development of OR, Nature of OR, Characteristics of OR, Classification of Problems in OR, Models in OR, Phases of OR, Uses and Limitations of OR, Methodologies of OR, Applications in OR. Linear Programming – Concepts of Linear Programming Model, Mathematical Formulation of the Problem, Graphical solution methods.

UNIT - II :

Linear Programming Methods – Simplex Methods, Big M methods, Dual Simplex Method, TwoPhase methods. Duality in Linear Programming – Formulation of Dual Problem, Application of Duality.

UNIT - III :

Transportation Problem

Mathematical model for Transportation Problem, Types of Transportation Problem.

UNIT - IV :

Assignment Problem – Zero-One Programming Model for Assignment Problem, Types of Assignment Problem, Hungarian Method, Branch and Bound Technique for Assignment Problem.

Reference Books:

1. Operation Research by Kanti Swarup, P. K. Gupta, Man Mohan [Sultan]
2. Operation Research by R. Panneerselvam [PHI]
3. Introduction to Operation Research by Billy E. Gillet [TMH]
4. Operation Research by Hira Gupta
5. Operation Research Problems and Solutions by Sharma J. K. [MacMillan]
6. Operation Research Theory and Application by Sharma J. K., [MacMillan]

B.C.A. Part II
Semester III
Paper V

128:WEB TECHNOLOGY - I

UNIT - I :

Introduction to Internet, History of Internet, Internet users, Internet 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.

UNIT - II :

HTML: Introduction, Objective, HTML Browsers, Windows Switching, HTML Command Tags, URLs, links, new web page creation, main body of the text, putting headers, adding paragraph , formatting text in HTML and font mechanism, Color settings, superscripts and subscripts and other manipulations on text and paragraphs, using directory and menu lists, creation of links, inserting graphics, using images, all manipulations on tables and its display, Detailed working with forms, allowing visitors to upload files, active images ,working with frames & framesets, Frames handling, scroll bars, alternatives to frames,

UNIT - III :

Introduction to browsers, Working with e-mail, Parts of e-mail text, working with messages.

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

Introduction to css, creating style sheets, common tasks with CSS, Colors, the font - family, font metrics ,length units ,absolute units ,relative units ,the pixel unit ,percentages as values ,keywords as values, various properties such as the font -size property, font - size property etc, Assigning classes ,tags and attributes for applying classes, applying classes to an HTML tag, applying classes to other document parts ,the layer tag, CSS Tags

Reference Books:

1. Internet and web design by R Bangia, Second edition , firewall media
2. Multimedia and Wed technology by R Bangia
3. Internet and web designing by ITELS (Macmillan)
4. Web Enabled Commercial Application Development Using HTML, DHTML, JS, Perl by Ivan Bayross
5. Deitel, Deitel & Nieto, Internet and Worldwide Web how to Program, Pearson Education, PHI.
6. Internmet Programming with VBScript and Java Script.
Kathhleen Kalata, (Thomsaon Publication)
7. Programming the World Wide Web By. Robert W. Sebesta. (Pearson)
8. Web Technology Theory and Practice By: M Srinivasan (Pearson Publication)

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B.C.A. Part II
Semester III
Paper VI

129:DIGITAL ELECTRONICS – I

UNIT - I :

Number System and Data Representation

Number System : Binary, Octal, Decimal and Hexadecimal number system and their interconversion.

Binary Codes : BCD, Excess3 , Parity, Gray, ASCII, EBCDIC codes and their advantages and disadvantages.

UNIT - II:

Binary Arithmetic

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, binary subtraction using 1's and 2's compliment.

UNIT - III:

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 - IV:

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.

Reference Books:

1. Digital Electronics by Gothman(PHI)
2. Digital and analogue technique by Navaneeth, Kale and Gokhale
3. Modern Digital Electronics by R. P. Jain

130:Practical-I

131:Practical-II

132:Practical-III

B.C.A. Part II
Semester IV
Paper I

133:SOFTWARE ENGINEERING - I

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.

Reference Books:

1. Software Engineering, A practitioner's Approach- Roger S. Pressman, 6th edition. McGrawHill International Edition.
2. Software Engineering- Sommerville, 7th edition, Pearson education.
3. Software Engineering- K.K. Agarwal & Yogesh Singh, New Age International Publishers
4. Software Engineering, an Engineering approach- James F. Peters, Witold Pedrycz, John Wiely.
5. Systems Analysis and Design- Shely Cashman Rosenblatt, Thomson Publications.
6. Software Engineering principles and practice- Waman S Jawadekar, The McGraw-Hill Companies.

B.C.A. Part II
Semester IV
Paper II

134:SQL AND PL/SQL

UNIT - I :

CODD'S Rules, Oracle Database Objects, Sub Languages of SQL, Data types, Operators.

DDL Statement: Creating Tables, Deriving Table from existing table, Altering, Dropping Tables. Integrity Constraints, Specifying Names for the Constraints, Viewing Integrity Constraints, Adding and Dropping Constraints. DML Statements: SELECT statement, Insert, Update, Delete, Working with Sequences and Synonyms. Built-in functions: Arithmetic, Date, Character, Conversion, Single row, Aggregate, Decode. Joins, Set Operators and Sub queries. DCL and TCL Statements: Grant, Revoke, Commit, Rollback and Savepoints.

UNIT - II :

VIEWS: Creating Views, Dropping Views, Inserting, Updating and Deleting Data using Views, Types of Views. **PL/SQL Programming:** PL/SQL Data Types, Identifiers, Operators and Expressions, Iterative Statements, Conditional Statements, emphasis on Problems

UNIT - III :

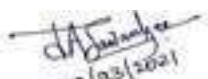
Exception Handling : Predefined Exceptions, User defined Exceptions. **Cursors:** Declaring Cursors, Opening and Retrieving Records, Closing cursors. Attributes of Explicit and Implicit Cursors, Parameter Passing in Cursors. **Procedures :** Create and Drop Procedure, Creating Procedures with Parameters, Calling Procedures, Granting the EXECUTE Permission Problems on Exception Handling, Cursors and Procedures.

UNIT - IV :

Function: Creating and Dropping Function, Purity Levels in Functions, Executing Functions. **Triggers:** Create Triggers, Type of Triggers, Creating BEFORE and AFTER Triggers, INSTEAD-OF Triggers, Trigger Predicates, Inserting, Updating and Deleting Triggers, Enabling , Disabling and Dropping Triggers. Problems on Functions and Triggers

Reference Books:

1. Understanding ORACLE By Ivan Bayross [BPB Publication]
2. Database System Using Oracle: A Simplified Guide to SQL & PL-SQL: Nilesh Shah, PHI Publication.
3. Database Management Systems (Complete practical approach) by Sharad Maheshwari & Ruchin Jain, Firewall media
4. Dr. P.S.Deshpande SQL & PL/SQL for Oracle 10g Black Book
5. Scott Urman Programming PL/SQL TMH


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B.C.A. Part II
Semester IV
Paper III

135:THEORY OF COMPUTATION

UNIT - I :

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.

UNIT - II :

Properties of Regular Sets : The pumping lemma for Regular Sets, Closure properties of Regular sets, Decision Algorithms for Regular Sets. Context Free Grammars, Context Free Grammar, Derivation Tree,

UNIT - III :

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,

UNIT - IV :

Push Down Automata : Informal description, Definitions, Push – Down Automata & Context free languages.

Reference Books:

1. Introduction to Automata Theory, Languages and Computation: John E. Hopcroft & Jeffrey D. Ullman
2. Theory of Computer Science : E. V. Krishnamoorthy.
3. Theory of computer Science : K. L. P. Mishra.

B.C.A. Part II
Semester IV
Paper IV

136:OPERATIONS RESEARCH - II

UNIT - I :

Game Theory – Terminologies of Game Theory, Two Person Zero-Sum Games, The Maximin-Minimax Principle, Games without Saddle points-Mixed Strategies, Graphical Solution of $2 \times n$ and $m \times 2$ games, Dominance Property. Introduction, Decision under Certainty, Decision under Risk, Decision under Uncertainty, Decision Tree.

UNIT - II :

Network Scheduling by CPM/PERT – Introduction, Basic Concept, Constraints in Network, Critical Path Method (CPM), PERT Network, PERT calculations, Time-Cost trade-off aspects in Network Technique, Advantage of Network (PERT/CPM).

UNIT - III :

Inventory Control

Introduction, Inventory Control, Selective Control Techniques, Types of Inventory, Economic Lot Size Problem, Problem of EOQ with shortage, Inventory Control Techniques – Uncertainty Demand, Stochastic Problem, Inventory Control with Price Breaks.

UNIT - IV :

Queuing Theory

Introduction, Terminologies in Queuing System, Characteristics of Queuing System, Poisson Process and Exponential Distribution, Classification of Queues, Definition of Transient and Steady states, Poisson Queues, Non-Poisson Queuing Systems, Cost-Profit Models in Queuing, Queuing Control.

Reference Books:

1. Operation Research by Kanti Swarup, P. K. Gupta, Man Mohan [Sultan]
2. Operation Research by R. Panneerselvam [PHI]
3. Introduction to Operation Research by Billy E. Gillet [TMH]
4. Operation Research by Hira Gupta
5. Operation Research Problems and Solutions by Sharma J. K. [MacMillan]
6. Operation Research Theory and Application by Sharma J. K., [MacMillan]

B.C.A. Part II
Semester IV
Paper V

137:WEB TECHNOLOGY - II

UNIT - I :

Introduction, JSP lifecycles, Elements in JSP Pages , 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.

UNIT - II :

Java script objects, Implicit JSP Objects, JSP Object scopes, JSP Tags, Declarations, Directives, JSP Tags, JSP Exceptions, Expressions, Scriptlet, Actions, Expression Language, JSP Standard Tag library, JSP Custom Tag library, Java Script security.

UNIT - III :

VB Script:

Adding VB Script code to HTML, Adding script to your document, Data types, Arrays in script, Messages, Subroutines, functions, if..then..else, for..next loop, do while or do until, Select case construct, Manage your web site with Task and Reports : Keep track of work with tasks, Check your site with your web site report, Publishing web site to a WPP host server.

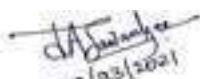
UNIT - IV :

Web Services :

Evolution of the concept, Purpose, standards, Use cases, programming models, SOAP Based web services, WSDL,, SOAP, Structure of SOAP messages, REST based Web Services, REST principles, Resource Orientation, SOAP vs. REST.

Reference Books:

1. Internet and web design by R Bangia, Second edition , firewall media
2. Multimedia and Web technology by R Bangia
3. Internet and web designing by ITELS (Macmillan)
4. Web Enabled Commercial Application Development Using HTML, DHTML, JS, Perl by Ivan Bayross
5. Deitel, Deitel & Nieto, Internet and Worldwide Web how to Program, Pearson
a. Education, PHI.
6. Internet Programming with VBScript and Java Script. Kathleen Kalata, (Thomson Publication)
7. Programming the World Wide Web By. Robert W. Sebesta. (Pearson)
8. Web Technology Theory and Practice By: M Srinivasan (Pearson Publication)


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B.C.A. Part II
Semester IV
Paper VI

138: DIGITAL ELECTRONICS – II

UNIT - I :

Combinational / Sequential Circuits

Combinational circuits: Half adder, Full Adder, Parallel adder, Half subtractor, Full Subtractor, 4-bit binary adder subtractor, Multiplexer, Demultiplexer, Decoder, Encoder, Parity detector.

UNIT - II :

Sequential Circuits: Flip-Flops : Construction and working of RSFF, CkRSFF, DFF, TFF, JKFF, and JKMSFF . **Counters:** Construction and working of asynchronous, synchronous, up-down counter, shift registers and their types.

UNIT - III :

Architecture of 8086 and Assembly Language Programming Block diagram of 8086, Pin diagram of 8086, Addressing modes,

UNIT - IV :

Instruction set: Data transfer, Arithmetic, Logical, String manipulations, Control Transfer, Unconditional branch, Conditional branch, Flag, Processor control. Assembler directives and operators, simple assembly programs.

Reference Books:

1. Digital Electronics by Gothman(PHI)
2. Digital and analogue technique by Navaneeth, Kale and Gokhale
3. Fundamental of Microprocessor by B Ram
4. Microcomputers Systems: The 8086/8088 family by Liu. Gibson
5. Introduction to Microprocessor by Douglas V Hall (McGraw Hill.)

139: Practical-I

140: Practical-II

141: Practical-III

B.C.A. Final Semester V
Paper I
142:COMPUTER GRAPHICS - I

UNIT - I :

Introduction and Primitives

Introduction: Application areas of Computer Graphics, overview of graphics systems, video-display devices, raster-scan systems, random scan systems, graphics monitors and work stations and input devices

UNIT - II :

Output primitives : Points and lines, line drawing algorithms, mid-point circle and ellipse algorithms. Filled area primitives: Scan line polygon fill algorithm, boundary-fill and flood-fill algorithms .

UNIT - III :

2D Transformations

2-D geometrical transforms : Translation, scaling, rotation, reflection and shear transformations, matrix representations and homogeneous coordinates, composite transforms, transformations between coordinate systems.

UNIT - IV :

2-D viewing : The viewing pipeline, viewing coordinate reference frame, window to view-port coordinate transformation, viewing functions, Cohen-Sutherland and Cyrus-beck line clipping algorithms, Sutherland –Hodgeman polygon clipping algorithm.

Reference Books:

1. “Computer Graphics Principles & practice”, second edition in C, Foley, VanDam, Feiner and Hughes, Pearson Education.
2. “Computer Graphics”, second Edition, Donald Hearn and M.Pauline Baker, PHI/Pearson Education.
3. Procedural elements for Computer Graphics, David F Rogers, Tata Mc Graw hill, 2nd edition.
4. “Principles of Interactive Computer Graphics”, Neuman and Sproul, TMH.
5. Computer Graphics, Amrendra N Sinha, Arun D Udai TMH
6. Computer Graphics, Steven Harrington, TMH

B.C.A. Final Semester V

Paper II

143: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.

Reference Books:

1. Principles of Compiler Design - A.V. Aho, J. D.Ullman : Pearson Education.
2. Modern Compiler Design- Dick Grune, Henry E. Bal, Caryl T. H. Jacobs, Wiley dreamtech.
3. Engineering a Compiler-Cooper & Linda, Elsevier.
4. Compiler Construction, Loudon, Thomson.

B.C.A. Final Semester V

Paper III

144:VB.NET

UNIT - I :

VB.NET

Introduction to .Net, The .NET framework, The .NET Programming Framework, .NET Language, The Class .NET Library, Vb.NET, Windows Application using VB .NET
Class: Creating a New Class, defining and using a New Object, Constructor & Destructor
Inheritance: Inheritance Properties and Methods, Inheriting Constructors, Overriding Methods, Creating a Derived Class

UNIT - II :

Interface Design & Implement: Abstraction & Interfaces on Object Oriented Software Design, Interface & Inheritance, Realizing the benefits of Interfaces, Implicit Interface, Explicit Interface – Abstract Class of Explicit Interface, Implementing Interfaces – Interface Implementation Semantics, Implementing ICloneable, Implementing IComparable, Accessing & using the Implement, Compound Interfaces

UNIT - III :

User Interface: Helper Forms, Message Process, Dialog Process, Owned Forms
Menus: Creating a Menu, Functionality to the Menu Items, Enhancing the Menu, Disabling Items on the Windows Form Menus, Creating Context Menu – Step by Step, Add Functionality to the Menu Items
Toolbar: Adding the Toolbar and buttons, Defining an Icon for the Toolbar and Buttons, Defining an ICON for a Toolbar Button, Adding Functionality to the Toolbar
MDI Application: The Basics, Building an MDI Application, Building – In Capabilities of MDI Applications, Accessing Child Forms, Ending an MDI Applications, A Scrollable PictureBox

UNIT - IV :

Advanced Interface Patterns, Adapters, Delegates & Events: Adapters & Wrappers, Interfaces Adaptation in Action – COM - .NET interop, The Adapter Pattern in .NET, The Adapter Pattern Event – Model, Delegates – Understanding Delegates, Declaration of the Delegates, Early Bound Delegates Declares, Late Bound Delegates Declares, Sorting Data with Delegates, Multicast Delegates, .NET Framework Event Model – Delegates & Events, Delegates Events verses Adapter Events, Delegates verses Function Pointers
Error Handling & Prevention: Types of Errors – Design Time Error, Runtime Error, Logic Error
Structured Exception Handling: Exception Structured verses Unstructured Exception Handling, Try.....Catch.....Finally Statement, Exception Class.
Debugging: Break Mode, Starting Debugging, Controlling the Flow during Debugging, Debugging Tools

Reference Books:

1. Evangelos Petroustos, Mastering Visual Basic 6.0 BPB Publication.
2. John Smiley Learn Program with Visual Basic 6
3. Wallace Wang Visual Basic 6 for Dummies (for Windows)
4. VISUAL BASIC 6 COMPLETE REFERENCE (TMH PUB)
5. Deitel & Deitel Visual Basic 6 (Pearson Education)
6. Bradly, VB.Net TMH

B.C.A. Final Semester V

Paper IV

145:SOFTWARE ENGINEERING - II

UNIT - I :

Creating an architectural design : Software architecture, Data design, Architectural styles and patterns, Architectural Design.

UNIT - II :

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.

UNIT - III :

Product metrics : Software Quality, Metrics for Analysis Model, Metrics for Design Model, Metrics for source code, Metrics for testing, Metrics for maintenance.

Metrics for Process and Products : Software Measurement, Metrics for software quality.

UNIT - IV :

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.

Reference Books:

1. Software Engineering, A practitioner's Approach- Roger S. Pressman, 6th edition. McGrawHill International Edition.
2. Software Engineering- Sommerville, 7th edition, Pearson education.
3. Software Engineering- K.K. Agarwal & Yogesh Singh, New Age International Publishers
4. Software Engineering, an Engineering approach- James F. Peters, Witold Pedrycz, John Wiely.
5. Systems Analysis and Design- Shely Cashman Rosenblatt, Thomson Publications.
6. Software Engineering principles and practice- Waman S Jawadekar, The McGraw-Hill Companies.

B.C.A. Final Semester V

Paper V

146:PHP - I

UNIT - I :

Introduction to PHP: What Does PHP Do, A Brief History of PHP, Installing PHP, A Walk Through PHP Language **Basics:** Lexical Structure, Data Types, Variables, Expressions and Operators, Flow-Control Statements, Including Code, Embedding PHP in Web Pages, Installing and Configuring PHP on Windows and Linux Platforms

UNIT - II :

Functions: Calling a Function, Defining a Function, Variable Scope, Function Parameters, Return Values, Variable Functions, Anonymous Functions, Strings: Quoting String Constants, Printing Strings, Accessing Individual Characters, Cleaning Strings, Encoding and Escaping, Comparing Strings, Manipulating and Searching Strings, Regular Expressions, POSIX-Style Regular Expressions, Perl-Compatible Regular Expressions,

UNIT - III :

Arrays: Indexed Versus Associative Arrays, Identifying Elements of an Array, Storing Data in Arrays, Multidimensional Arrays, Extracting Multiple Values, Converting Between Arrays and Variables, Traversing Arrays, Sorting, Acting on Entire Arrays, Using Arrays

UNIT - IV :

Reading data in web pages: Setting Up Web Pages to Communicate with PHP, Handling Text Fields, Text Areas, Check Boxes, Radio Buttons, List Boxes, Password Controls, Hidden Controls, Image Maps, File Uploads. **Handling Buttons:** Making Button Data Persist, Using Submit Buttons as HTML Buttons.

Reference Books:

1. PHP 5.1 for beginners by Evan Bayross and Sharman Shah, SPD Publications
2. PHP 5.2 The Complete Reference by Steven Holzner, Mc Graw Hill Edition 2008.
3. Programming PHP by Rasmus Lerdorf and Kevin Tatroe, Orilly Publications

B.C.A. Final Semester V
Paper VI
147:DATA COMMUNICATION AND
NETWORK - I

UNIT - I :

Data Communication

Data Transmission- Concept and Terminology, Analog & Digital Data Transmission, Transmission Impairment, Transmission Media.

Data Encoding- Digital Data, Analog Data, Digital Signal, Analog Signal.

UNIT - II :

Digital Data Communication: Asynchronous and Synchronous transmission, Error detection technique, Interfacing.

Data Link Control: Line configurations, Flow control, Error control, Data link control protocols.

Multiplexing-Frequency division multiplexing, Synchronous Time Division Multiplexing.

UNIT - III :

Circuit Switching: Communication Networks, Circuit switching, Single Node network, Digital switching concept, Control Signaling.

UNIT - IV :

Packet Switching: Packet switching principles, Virtual circuits and diagrams, Routing, Traffic control, X.25. LAN & MAN- LAN,MAN technology, Bus, Tree, Star and Hybrid Topologies, Optical fiber Bus, Ring Topology, Medium Access Control Protocols, LAN/MAN standards.

Reference Books:

1. William Stalling, Data and Computer Communication, PHI Publication.
2. Forouzan, Data Communication and Networks, Tata McGraw Hill.
3. Godbole, Data Communication and Network, TMH
4. Tanenbum, Computer Networks , ,PHI Publication.
5. Comer Internetworking with TCP/IP Vol-1, PHI Publication

148:Practical-I

149:Practical-II

150:Practical-III

**B.C.A. Final
Semester VI
Paper I**

151:COMPUTER GRAPHICS - II

UNIT - I :

3D Transformations

3-D object representation : Polygon surfaces, quadric surfaces, spline representation, Hermite curve, Bezier curve and B-Spline curves, Bezier and B-Spline surfaces. Basic illumination models, polygon rendering methods.

UNIT - II :

3-D Geometric transformations : Translation, rotation, scaling, reflection and shear transformations, composite transformations.

3-D viewing : Viewing pipeline, viewing coordinates, view volume and general projection transforms and clipping

UNIT - III :

Visible surface detection methods : Classification, back-face detection, depth-buffer, scan-line, depth sorting, BSP-tree methods, area sub-division and octree methods

UNIT - IV :

Computer animation : Design of animation sequence, general computer animation functions, raster animation, computer animation languages, key frame systems, motion specifications.

Reference Books:

1. "Computer Graphics Principles & practice", second edition in C, Foley, VanDam, Feiner and Hughes, Pearson Education.
2. "Computer Graphics", second Edition, Donald Hearn and M.Pauline Baker, PHI/Pearson Education.
3. Procedural elements for Computer Graphics, David F Rogers, Tata Mc Graw hill, 2nd edition.
4. "Principles of Interactive Computer Graphics", Neuman and Sproul, TMH.
5. Computer Graphics, Amrendra N Sinha, Arun D Udai TMH
6. Computer Graphics, Steven Harrington, TMH

**B.C.A. Final
Semester VI
Paper II**

152:PROGRAMMING IN JAVA

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, Bit- Wise, 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, one-dimensional 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, text & fonts, creating a font class, font objects, text, coloring object.

Streams:-Introduction, Abstract stream classes, file input & output.

AWI 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)

Reference Books:

1. Programming with Java a primer II edition:-E Balaguruswamy(Tata McGraw-Hill)
2. Java Programming (For absolute beginners) Russell PHI
3. Black Book on Java
4. Java-Complete References

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**B.C.A. Final
Semester VI
Paper III**

153:ASP.NET

UNIT - IV :

Introduction to XML

Introduction to XML, creating DTD, elements and attributes definitions. XML schema. Defining simple and complex types. Namespaces, Schemas and validation. Cascading style sheets (CSS) and XML, Anatomy of a style, creating and calling style sheets for an XML/HTML document. Layout with CSS. Setting up various properties of elements using CSS. Formatting text with CSS, XML schemas, writing Simple sheets using XSLT, SAX and DOM Parsers, SOAP introduction.

UNIT - II :

Introduction to ASP .NET

Introduction to ASP .Net, Types, Object and Namespaces, Setting up ASP .NET and IIS, ASP .NET configuration, ASP .NET Application, Web form Fundamentals, Web Controls, Global.asax Application File, Responding toPostBack Events in ASP .NET.

UNIT - III :

ASP .NET Validations and Rich Controls: Calendar Control, AdRotator, Advertisement File and AdRotator Class, Server-side Validation, Client –side Validation, Validation Controls, Validated Customer Form. State Management, Tracing, Logging and Error Handling.

UNIT - IV :

Accessing Data with ADO.NET Relational Databases and SQL, ADO .NET Object model, Working with Data –Bound Controls, Populating a DataGrid, DataList and Repeater, Customizing DataSet and Combining Data Tables, Changing Database records accessing, Updating, Deleting and Creating records, Difference between ADO .NET and XML, Adding Controls, Data binding, Database Connectivity.

Reference Books:

1. Beginning XML By Wrox Press
2. XML how to program By Deitel and Deitel
3. Web Enabled Commercial Application Development using HTML, DHTML, JAVA Script, and PERL-CGI By Ivan Bayross
4. The Complete Reference By Thomas Powell Tata MacGraw Hill
5. ASP .NET-The Complete Reference Tata MacGraw Hill

**B.C.A. Final
Semester VI
Paper IV**

154:SOFTWARE TESTING

UNIT - I:

Introduction: Testing as an Engineering Activity, Testing as a Process, testing axioms, Basic Definitions Software Testing Principles, The Tester's Role in a Software Development Organization, Origins of Defects, cost of defects, Defect Classes, The Defect Repository and Test Design, Defect Examples, Developer/Tester Support for Developing a Defect Repository, Defect Prevention Strategies.

UNIT - II:

Test Case Design : Test Case Design Strategies, Using Black Box Approach to Test Case Design, Random Testing, Requirements based testing, Boundary Value Analysis, Decision tables, Equivalence Class Partitioning, State-based testing, Cause-effect graphing, Error guessing, Compatibility testing, User documentation testing, Domain testing

Using White Box Approach to Test design, Test Adequacy Criteria, static testing vs. structural testing, code functional testing, Coverage and Control Flow Graphs, Covering Code Logic, Paths, Their Role in White-box Based Test Design, code complexity testing, Evaluating Test Adequacy Criteria.

UNIT - III:

Levels Of Testing : The Need for Levels of Testing, Unit Test, Unit Test Planning, Designing the Unit Tests, The Test Harness, Running the Unit tests and Recording results, Integration tests, Designing Integration Tests, Integration Test Planning, Scenario testing, Defect bash elimination.

System Testing, Acceptance testing, Performance testing, Regression Testing, Internationalization testing, Ad-hoc testing - Alpha, Beta Tests, testing OO systems, Usability and Accessibility testing, Configuration testing, Compatibility testing, Testing the documentation, Website testing

UNIT - IV:

Test Management : People and organizational issues in testing, organization structures for testing teams, testing services, Test Planning, Test Plan Components, Test Plan Attachments, Locating Test Items – test management, test process, Reporting Test Results, The role of three groups in Test Planning and Policy Development, Introducing the test specialist, Skills needed by a test specialist, Building a Testing Group.

Reference Books:

1. Srinivasan Desikan and Gopalaswamy Ramesh, "Software Testing – Principles and Practices", Pearson education, 2006.
2. Ilene Burnstein, "Practical Software Testing", Springer International Edition, 2003.
3. Ron Patton, "Software Testing", Second Edition, Sams Publishing, Pearson education, 2007
4. Renu Rajani, Pradeep Oak, "Software Testing – Effective Methods, Tools and Techniques", Tata McGraw Hill, 2004.
5. Edward Kit, "Software Testing in the Real World – Improving the Process", Pearson Education, 1995.
6. Boris Beizer, "Software Testing Techniques" – 2nd Edition, Van Nostrand Reinhold New York, 1990.
7. Aditya P. Mathur, "Foundations of Software Testing – Fundamental algorithms and techniques", Dorling Kindersley (India) Pvt. Ltd., Pearson Education, 2

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**B.C.A. Final
Semester VI
Paper V**

155:PHP - II

UNIT - I :

PHP Browser-Handling Power: Using PHP's Server Variables, Using HTTP Headers, Getting the User's Browser Type, Redirecting Browsers with HTTP Headers, Dumping a Form's Data All at Once, Handling Form Data with Custom Arrays, Putting It All in One Page.

Data Validation: Performing Data Validation, Checking if the User Entered Required Data, Requiring Text, Persisting User Data, Client-Side Data Validation, Handling HTML Tags In User Input.

UNIT - II :

Classes and Objects: Terminology, Creating an Object, Accessing Properties and Methods, Declaring a Class, Introspection, Serialization, Web Techniques: HTTP Basics, Variables, Server Variables, Server Information, Processing Forms, Setting Response Headers, Session, cookies, files, Maintaining State, SSL.

UNIT - III :

Working With Database: Using PHP to Access a Database: Relational Databases and SQL, Mysql database Basics, Execute SQL Queries In PHP, Accessing The Database In PHP: Connecting To The Database, Reading, Displaying, Closing Connection, Database Manipulation: Inserting, Updating, Sorting and Deleting Records. Advanced Database Techniques.

UNIT - IV :

Setting a Cookie, Reading a Cookie, setting cookies Expiration, Deleting Cookies. Working with FTP: Downloading with FTP, Uploading files with FTP, Deleting a file with FTP, Creating and Removing Directories with FTP, Sending E-mail, Advanced E-mail, Adding Attachments to E-mail, Storing Data in Sessions, Writing a Hit Counter Using Sessions. PHP Code, Shell Commands.

Reference Books:

1. PHP 5.1 for beginners by Evan Bayross and Sharman Shah, SPD Publications
2. PHP 5.2 The Complete Reference by Steven Holzner, Mc Graw Hill Edition 2008.
3. Programming PHP by Rasmus Lerdorf and Kevin Tatroe, Orilly Publications

**B.C.A. Final
Semester VI
Paper VI**

**156:DATA COMMUNICATION AND
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).

Reference Books:

1. William Stalling, Data and Computer Communication, PHI Publication.
2. Forouzan, Data Communication and Networks, Tata McGraw Hill.
3. Godbole, Data Communication and Network, TMH
4. Tanenbum, Computer Networks, PHI Publication.
5. Comer Internetworking with TCP/IP Vol-1, PHI Publication

157:Practical-I

158:Practical-II

159:Practical-III

B. Sc. (IT) Part I Semester-I

160:Compulsary English

Semester I

Theory : (Full marks 60)

Internal Assessment : (15 marks)

Prescribed Textbook : Life and Language by Board of Editors

(Dr. Sunilkumar Navin, Dr. Kartik Panicker, Dr. Nitin Akhuj,
Dr. Rini Dwivedi, Dr. Goldie Baghmar, Dr. Radheshyam Dipte,
Dr A.A.Khan & Dr. R.P.Singh)
(Published by Oxford University Press)

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

Recommended books for Unit III & IV :

1. Macmillan Foundation English (Macmillan) by R.K.Dwivedi & A.Kumar
2. Learners' English Grammar and Composition (S.Chand) by N.D.V.Prasada Rao
3. Grammar and Composition For Communication by Sagarmal Gupta and Alpana Gupta (Orient BlackSwan)

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B. Sc. (IT) Part I Semester-I

161:Supplementary English

Semester - I

Theory Examination - Full Marks : 60

Internal Assessment – Full Marks : 15

Theory

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

Recommended Book for Units III & IV : Macmillan Foundation English by R.K.Dwivedi & A.Kumar (Macmillan)

Internal Assessment: The teacher should give regular assignments to students on the basis of the items prescribed in Units I, II, III & IV. These assignments should be submitted by the students for evaluation. This record of assignments should be produced by the students at the time of the Internal Assessment conducted towards the end of the Semester.

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B. Sc. (IT) Part I Semester-I
162:Marathi

<u>Syllabus</u>			
SS : B.Sc (IT), B.C.A. I ST SEM.		Subject : MARATHI	
Unit	Particulars	From	To
1	वर्तमानकालीन सामाजिक, पर्यावरण विषयावर आधारित निबंध (दोन पैकी एक)	(12)	गुण
2.	गद्य विभाग 1) शेतकऱ्यांविषयी - म. जोतीबा फुले 2) स्टीमरमध्ये - म. गांधी 3) विज्ञान शाप की वरदान - द. के. केळकर 4) ज्ञान - साने गुरुजी 5) खंडेरावचं संशोधन - भालचंद्र नेमाडे	(15)	गुण
3.	पद्य विभाग 1) दुरितांचे लिमिर् जावो - संत ज्ञानेश्वर 2) वृक्षवल्ली आम्हां शेथरे - संत तुकाराम 3) आम्ही कोण ? - केशवसुत 4) कशाळा पढरी जातो ? - राष्ट्रसंत तुकडोजी महाराज 5) आहे बुद्धीशी इमान - वा. शी. मर्ढेकर	(15)	गुण
4.	1) म्हुणींचा 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

B. Sc. (IT) Part I Semester-I

163:Hindi

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 ब्लैकस्वॉन
प्रथम इकाई : (अ) निबंध :- समसामायिक विषय (ब) मुहावरे	15
द्वितीय इकाई : गद्य (1) ईदगाह (2) गुण्डा (3) परदा (4) जिंदगी और जोंक (5) मैं हार गई	15
तृतीय इकाई : पद्य (1) तोडती 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	15

B. Sc. (IT) Part I
Semester-I
Paper I
164: 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.

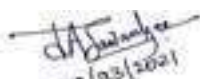
Output Devices: VDU, Printers: Dot Matrix, Laser and Inkjet.
Plotters: Drum, Flat-Bed and Inkjet.

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.

Reference Books:

1. Information technology concepts by Dr. Madhulika Jain, Shashank & Satish Jain, [BPB Publication, New Delhi.]
2. Fundamentals of Information Technology By Alexis And Mathews Leon [Leon Press, Chennai & Vikas Publishing House Pvt Ltd, New Delhi]


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B. Sc. (IT) Part I Semester-I

Paper II

165: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, 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.

Reference Books:

1. The Art of programming through flowcharts & algorithm by Anil B. Chaudhari
Firewall Media, Laxmi publication, New Publication.
2. Programming in C by E. Balagurusamy TMH Publications.
3. C Programming - Kernighen Ritche
4. Programming with C – Y. Kanetkar.
5. C Programming – Holzner, PHI Publication.
6. Programming in C – Ravichandran.

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B. Sc. (IT) Part I Semester-I

Paper III

166: 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.

Reference Books:

1. Information Systems Analysis, Design and Implementation By K. M. Hussain Donna Hussain [Tata McGraw-Hill Publishing Company Ltd, New Delhi]
2. Fundamentals of Software Engineering by Rajib Mall [PHI Publication]
3. Workbook on Systems Analysis & Design by V. Garg [PHI Publication]
4. System Analysis and Design- Don Yeates, shiebls, Helmy (M).
5. System Analysis & Design - Edward –TMH
6. System Analysis and Design – Satzinger, Robert Jackson and Stephen Burd, Thomson Learning
7. Introduction to Systems Analysis Design, Igor Hawryszkiewicz, PHI

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B. Sc. (IT) Part I Semester-I

Paper IV

167: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, Pre-formatted text tag, list element (Unordered lists, ordered list, Definition list, Marquee tags and its attribute. **Character formatting tags**: Logical verses physical style, logical and physical tags. Changing the colors of the fonts. **Linking** :Relative pathnames verses 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

BOOKS:

1. Complete HTML by BPB
2. HTML – 4 Unleashed (SAMS)
1. Dynamic HTML by O'RELLY (SPD)
2. Java Script Programming for the absolute beginner by Harris (PHI)

168: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.

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, Wavelet-Based Coding, Embedded Zerotree of Wavelet Coefficients Set Partitioning in Hierarchical Trees (SPIHT).

Text Books:

1. Fundamentals of Multimedia by Ze-Nian Li and Mark S. Drew PHI/Pearson Education.
2. Essentials Action Script 2.0, Colin Moock, SPD O'REILLY

169: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.

Reference Books:

1. Discrete Mathematical Structures with applications to computer Science By J,P.Tremblay & R. Manohar, (TMH)
2. Discrete Mathematical Structures by Kolman Busby and Ross (pearson)
3. Discrete Mathematics By Norman Biggs. (Oxford).
4. Logic and Discrete Mathematics : Grassmann, Tremblay (Pearson)
5. Introduction to Automata Theory, Languages, and computation :Hopcroft, Motwani and Ullman(Pearson)
6. An introduction to the theory of computer science , languages and machines : Sudkamp
7. Kenneth H Rosen Discrete Mathematics & it's Applications TMH

170:Practical-I

171:Practical-II

172:Practical-III

B. Sc. (IT) Part I
Semester-II
173:Compulsary English

Semester – II

Theory : (Full Marks 60)

Internal Assessment : (15 marks)

Prescribed Textbook : Life and Language by Board of Editors

(Dr. Sunilkumar Navin, Dr. Kartik Panicker, Dr. Nitin Akhuj,
Dr. Rini Dwivedi, Dr. Goldie Baghmar, Dr. Radheshyam Dipte,
Dr A.A.Khan & Dr. R.P.Singh)
(Published by Oxford University Press)

Unit I - Prose Lessons

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

Unit II - Poems

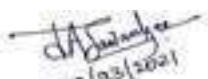
1. Where the Mind is without Fear
2. My Last Duchess
3. Up Hill
4. The Village Schoolmaster

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.
(Words shall be from the prescribed lessons.)


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174:Supplementary English

Semester II

Theory Examination - Full Marks : 60

Internal Assessment – Full Marks : 15

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)

Recommended Book : Macmillan Foundation English by R.K.Dwivedi & A.Kumar
(Macmillan)

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175:Marathi

IIND IVTH Sem

Syllabus

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 कुणीही शोधू शकते - अय्याम मनोहर ⑦ ज्ञानदेव रचिला पाया - सदानंद मोरे ⑧ विवेकवादी आणि विज्ञाननिष्ठ : संत तुकाराम - किशोर शानप ⑨ स्त्री - पुरुष स्वातंत्र्याची गोष्ट - अरुणा सधाने ⑩ गाव तिथं शाळा - रमेश इंगळे - उन्नावकर	(15)	
3.	पद्य विभाग ⑥ आणि पृथ्वीला हसू येते - सुधाकर गायधनी ⑦ शब्द - श. गो. चवरे ⑧ एकविसाव्या शतकाच्या उंबरठ्यावर ⑨ गाव जुन्या शोणा - मातीचे - जयशम खेडेकर ⑩ जन्म - मरणच्या वेळा - संजीवनी तडेगावकर	(15)	
4.	① वाक्प्रचाराचा अर्थसांगून वाक्यात उपयोग करा. ③ ② शुद्धलेखन ③ ③ सारांश ④ ④ पत्र ④ ⑤ माहितीचा अधिकार ④ = (18)		

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176:Hindi

BSc/Bca निर्धारित पाठ्यपुस्तक : III sem

साहित्य सरीता
सम्पादक -जोगेन्द्रसिंह बिसेन
प्रकाशक-ओरियंट ब्लैकस्वॉन

प्रथम इकाई : (अ) निबंध :-1) विज्ञान 2) कल्पानाशील विषय (ब) लोकोक्ति	12 03
द्वितीय इकाई : गद्य (1) ढाई आखर प्रेम का (2) वापसी (3) इमाम साहब (4) सलाम (5) छप्पन तोले का करधन	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

प्रश्नपत्र का प्रारूप एवं अंक विभाजन

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B. Sc. (IT) Part I
Semester-II
Paper I
177: 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

Books:

1. Modern Digital Electronics by R. P. Jain, 3rd Edition, McGraw Hill
2. Digital Design and Computer Organisation by Dr. N. S. Gill and J. B. Dixit, University Science Press

178: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, 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.

Reference Books:

1. Mastering C++ by K R Venugopal Tata McGraw-Hill , New Delhi.
2. The C++ Programming Language –Bjarne Stroustrup
3. Programming with C++ - Ravichandran
4. Programming with C++ - Robert Lafore
5. Object Oriented Programming with C++ by E. Balagurusamy, McGraw Hill

179: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.

Reference Books:

1. Operating Systems by P. Balakrishna Prasad [Scitech Publication]
2. Operating System Concept : Silbershaz (Addison Education)
3. Operating Systems - H.M. Deitel - Addison Wesley.
4. Operating Systems- John J. Donovan.
5. Operating System : A.S.Godbole (TMH)
6. Modern Operating Systems : Tenenbaum (Pearson Education)
7. Operating System : Peterson.

180: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 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.

References:

1. Deitel, Deitel & Nieto, Internet and Worldwide Web how to Program, Pearson Education
2. Techmedia : The Complete Java Script
3. Eddy et. al. : "Teach Yourself Active Server Pages" (IDG)
4. R Bangia, Second edition Internet and web design, firewall media
5. R Bangia Multimedia and Wed technology
6. Internet and web designing, Macmillan
7. Ivan Bayross Web Enabled Commercial Application Development Using HTML, DHTML, JS, Perl
8. Kathhleen Kalata, Internmet Programming with VBScript and Java Script. Thomson Publication
9. Robert W. Sebesta, Programming the World Wide Web Pearson
10. Pekowsky : "Java Server Pages" (Pearson Education)

181: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.

Reference Books:

1. Data Base System Concepts By A SilbersChatz By Henry Korth And S.Sudarshan [Mcgraw-Hill ltd. New Delhi] 3rd Edition.
2. Introduction to Data Base Management by NAVEEN PRAKASH [Tata McGrawHill ltd.]
3. Bipin C. Desai, An Introduction to Database Systems, Galgotia Publications.
4. Raghu Ramakrishnan & Johannes Gerhrke, "Data Base Management Systems", Mc Graw Hill International Edition, 2000
5. Muzumdar, Introduction to Database Management Systems. TMH

182: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.

Reference Books:

1. Discrete Mathematical Structures with applications to computer Science By J,P.Tremblay & R. Manohar, (TMH)
2. Discrete Mathematical Structures by Kolman Busby and Ross (pearson)
3. Discrete Mathematics By Norman Biggs. (Oxford).
4. Logic and Discrete Mathematics : Grassmann, Tremblay (Pearson)
5. Introduction to Automata Theory, Languages, and computation :Hopcroft, Motwani and Ullman(Pearson)
6. An introduction to the theory of computer science , languages and machines : Sudkamp
7. Kenneth H Rosen Discrete Mathematics & it's Applications TMH

183:Practical-I

184:Practical-II

185:Practical-III

186: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.

TEXT BOOKS :

1. Advanced microprocessor and Peripherals - A.K.Ray and K.M.Bhurchandi, TMH, 2000.
2. Micro Controllers – Deshmukh, Tata McGraw Hill Edition.

187: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 : BFS, DFS Method.

Reference Books:

1. Classical Data Structures : D. Samanta. PHI, New Delhi.
2. DATA STRUCTURE : LIPSCTUZ SCHUM OUTLINE SERIES
3. Data structure Using C++ : Y. Kanetkar
4. Data Structures Using C++: Tennenbaum
5. Data structures by Tremblay Sorenson
6. Data structures by Bhagat singh Naps

188: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 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 M-ary 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.

References:

1. Godbole Data Communication and Networking .- (TMH)
2. P.C. Gupta – Data Communications and Computer Networks, PHI, New Delhi 2006
3. Comer Internetworking with TCP/IP Vol-1, PHI Publication.
4. Wayne Tomasi Introduction to Data Communications & Networking (Pearson Education)
5. Kenneth C. Mansfield, Jr; James L.Antonakos An Introduction to Computer Networking (Pearson Education)
6. W. Stallings - Data and Computer Communications, 7th Edn., Pearson Edn./ PHI, New Delhi,
7. Forouzan Data Communication and Networks, Tata McGraw Hill.
8. Tanenbum Computer Networks, 3ed edition, PHI Publication.

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B. Sc. (IT) Part II Semester -III

Paper IV

189: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 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.

Reference Books:

1. SAMS Teach Yourself Linux by Craig and Coletta Witherspoon [Techmedia]
2. LINUX complete reference by Richard Peterson

B. Sc. (IT) Part II Semester -III

Paper V

190: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.

Reference Books:

01. E-Commerce, Strategy, Technologies and Applications By: David Whiteley Tata McGraw-Hill Edition.

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B. Sc. (IT) Part II Semester -III

Paper VI

191: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.

Reference Books:

- 1.S Sastry Introduction to Numerical Analysis
- 2.Y. Rajaraman, Computer Oriented Numerical Methods - Prentice Hall Publication
- 3.Gupta and Kapoor Fundamental of Mathematical Statistics
- 4.Brian Flowers Introduction to Numerical Methods in C++ By. (Oxford)
- 5.E. Balaguruswamy, Numerical Methods - Tata McGraw Hill Publication
- 6.Srimanta Pal Numerical Methods (Oxford)
- 7.K Sankara Rao Numerical Methods for Scientists & Engineers [PIII].
- 8.Manish Goyal Computer Based Numerical And Statistical Techniques (Laxmi)

192:Practical-I
193:Practical-II
194:Practical-III

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B. Sc. (IT) Part II Semester -IV

Paper I

195: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.

BOOKS :

1. Software Engineering, A practitioner's Approach- Roger S. Pressman, 6th edition. McGrawHill International Edition.
2. Software Engineering- Sommerville, 7th edition, Pearson education.
3. Software Engineering- K.K. Agarwal & Yogesh Singh, New Age International Publishers
4. Software Engineering, an Engineering approach- James F. Peters, Witold Pedrycz, John Wiely.
5. Systems Analysis and Design- Shely Cashman Rosenblatt, Thomson Publications.
6. Software Engineering principles and practice- Waman S Jawadekar, The McGraw-Hill Companies.

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B. Sc. (IT) Part II Semester -IV

Paper II

196: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, Bit-Wise, 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, one-dimensional 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, text & fonts, creating a font class, font objects, text, coloring object. **Streams:**-Introduction, Abstract stream classes, file input & output. **AWI 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)

Reference Books:

1. Programming with Java a primer II edition:-E Balaguruswamy(Tata McGraw-Hill)
2. Java Programming (For absolute beginners) Russell PHI
3. Black Book on Java
4. Java-Complete References

B. Sc. (IT) Part II Semester -IV
Paper III
197:Data Communication &

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).

Books

1. William Stalling, Data and Computer Communication, PHI Publication.
2. Forouzan, Data Communication and Networks, Tata McGraw Hill.
3. Godbole, Data Communication and Network, TMH
4. Tanenbum, Computer Networks , ,PHI Publication.
5. Comer Internetworking with TCP/IP Vol-1, PHI Publication
6. Data and Computer Communication by William Stalling, PHI Publication.
7. Data Communication and Network by Forouzan, Tata McGraw Hill.

B. Sc. (IT) Part II Semester –V

Paper IV

198: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, cursors 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.

Books:-

1. ORACLE 9i PL/SQL PROGRAMMING, SCOTT URMAN, : ORACLE PRESS
2. ORACLE PL/SQL : PL/SQL IN 21 DAYS (TECHMEDIA) SAMS
3. ORACLE 9i THE COMPLETE REFERENCE
4. ORACLE : I.T. TODAY (ENCYCLOPEDIA)
5. Database System Using Oracle: A Simplified Guide to SQL & PL-SQL: Nilesh Shah, PHI Publication.
6. Database Management Systems (Complete practical approach) by Sharad Maheshwari & Ruchin Jain, Firewall media
7. Dr. P.S.Deshpande SQL & PL/SQL for Oracle 10g Black Book

B. Sc. (IT) Part II Semester -IV

Paper V

199: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.

Reference Books:

1. Principles of Compiler Design - A.V. Aho, J. D.Ullman : Pearson Education.
2. Modern Compiler Design- Dick Grune, Henry E. Bal, Cariel T. H. Jacobs, Wiley dreamtech.
3. Engineering a Compiler-Cooper & Linda, Elsevier.
4. Compiler Construction, Loudon, Thomson.

B. Sc. (IT) Part II
Semester -IV
Paper VI
200: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-

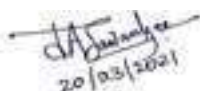
Reference Books:

- 1.S Sastry Introduction to Numerical Analysis
- 2.Y. Rajaraman, Computer Oriented Numerical Methods - Prentice Hall Publication
- 3.Gupta and Kapoor Fundamental of Mathematical Statistics
- 4.Brian Flowers Introduction to Numerical Methods in C++ By. (Oxford)
- 5.E. Balaguruswamy, Numerical Methods - Tata McGraw Hill Publication
- 6.Srimanta Pal Numerical Methods (Oxford)
- 7.K Sankara Rao Numerical Methods for Scientists & Engineers [PIII].
- 8.Manish Goyal Computer Based Numerical And Statistical Techniques (Laxmi)

201:Practical-I

202:Practical-II

203Practical-III


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**B. Sc. (IT) Final
Semester -V
Paper I
204: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.

Text Book:

1. Pankaj Jalote – Software Project Management in Practice, Pearson Education, New Delhi
2. B.Huges and M.Cotterell – Software Project Management, 3/e, TMH, New Delhi
3. Pankaj Jalote – CMM in Practice, Pearson Education, New Delhi
4. W. Humphrey – Managing the Software Process, Addison – Wesley
5. R. T. Futrell, D. F. Shafer, L. I. Safer, “Quality Software Project Management”, Pearson Education

**B. Sc. (IT) Final
Semester -V
Paper II
205: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

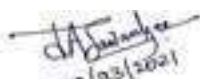
C# Using Libraries: Namespace- System, Input-Output, Multi-Threading, Networking and sockets, Managing Console I/O Operations, Windows Forms, Error Handling.

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.

Books:-

1. Wiley,” Beginning Visual C# 2008”, Wrox
2. Fergal Grimes,” Microsoft .Net for Programmers”. (SPI)
3. Balagurusamy,” Programming with C#”, (TMH)
4. Mark Michaelis, “Essential C# 3.0: For .NET Framework 3.5, 2/e, Pearson Education
5. Shibi Parikkar, “ C# with .Net Frame Work” , Firewall Media.


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**B. Sc. (IT) Final
Semester -V
Paper III
206: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.

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

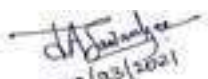
Network Security Applications, Authentication Mechanisms: a) Passwords, b) Cryptographic authentication protocol, c) Smart Card, d) Biometrics,e) Digital Signatures and seals, f) Kerberos, g) X.509 LDAP Directory. Web Security : a) SSL Encryption b) TLS, SET, E-mail Security, PGP's / MIME, IP Security, 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

BOOKS

1. William Stallings, "Network Security Essentials", Prentice-Hall.
2. Edward Amoroso, "Fundamentals of Computer Security Technology", Prentice-Hall.

References :

1. 3 Dorothy E. Denning, "Cryptography and Data Security", Addison-Wesley.
2. 4 Peter J. Denning, "Computers under Attack", Addison-Wesley.
3. 5 Douglas R. Stinson, "Cryptography: Theory and Practice", CRC Press.
4. 6 D. Brent Chapman and Elizabeth D. Zwicky, "Building Internet Firewalls",
5. O'Reilly and Associates


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**B. Sc. (IT) Final
Semester -V
Paper IV
207: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

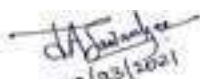
Data warehousing design Review, Developing data warehouse, Testing, Monitoring, Tuning, Feedback Loops. OLAP in Data warehouse: OLAP, ROLAP, HOLAP, Multidimensional Analysis, OLAP Functions, OLAP Application's, OLAP Models, OLAP Considerations, Tools and Products, Data Design, Administration and Performance,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

Text Books

1. Rema Thareja Data Warehousing Oxford University Press
2. Alex Berson, S. J. Smith, Data Warehousing, Data Mining & OLAP, TMH
3. George M Marakas, Modern Data Warehousing, Mining and Visualization, Pearson Education


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**B. Sc. (IT) Final
Semester -V
Paper V
208: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.

UNIT-III :

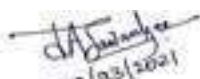
Menus: Creating, Adding Menu Items, Creating Shortcut, Adding Separators Bars, Submenus, Code for Menus. Creating Popup Menu: System, Custom. **Database Handling:** Database Concepts, Creating and Accessing Database, Using Data Control. **Using DAO:** Creating Search Programs, Numeric Search and Complex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

Reference Books:

1. VISUAL BASIC – to Advance by Soma Dasgupta [BPB Publication]
2. Evangelos Petroustos, Mastering Visual Basic 6.0 BPB Publication.
3. VISUAL BASIC 6 COMPLETE REFERENCE (TMH PUB)
4. Visual Basic 6 Deitel & Deitel (Pearson Education)
5. Mastering VB 6.0 Black Book -Peter - Norton-Techmedia.


20/03/2021
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S.S. Maniar College, Nagpur

B. Sc. (IT) Final
Semester -V
Paper VI
209: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.

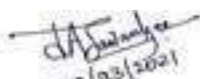
Reference Books:

1. Elements of Discrete Mathematics by C.L. Liu
2. Discrete Mathematics by Olympia Nicodemi
3. Discrete Mathematical Structure for Computer Science by Alan Doer and K. Levasicur.
4. Discrete and Combinatorial Mathematics by R.M. Grassl
5. Discrete Mathematics by Kenneth Rosen, Tata McGraw Hill
6. Graph Theory with Applications to Computer Science and Engineering by
7. Narsing Deo, Prentice Hall, India.
8. A First Step in Graph Theory by Raghunathan, Nimkar and Solapurkar
9. Discrete mathematics by S.R. Patil and others, NIRALI Prakashan.
10. Discrete mathematics by Bhopatkar, Nimbkar, Joglekar, VISION
11. Publication.
12. Discrete mathematics by Naik and Patil, PHADAKE Prakashan.

210:Practical-I

211:Practical-II

212:Practical-III


20/03/2021
Off. Principal,
S.S. Maniar College, Nagpur

B. Sc. (IT) Final Semester -VI
Paper I
213: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.

BOOKS:

1. ERP Demystified by Aleris Leon (TMH Pub.)
2. Enterprise Resource Planning by Parag Diwan and Sunil Sharma (Pentageon Pren.)

B. Sc. (IT) Final Semester -VI

Paper II

214: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).

References:

1. Margaret Levine Young, "The Complete Reference Internet", TMH.
2. Naughton, Schidt, "The Complete Reference JAVA2", TMH.
3. Balagurusamy E., "Programming in Java", TMH.
4. Dustin R. Callway, "Inside Servlets", Addison Wesley.
5. Mark Wutica, "Java Enterprise Edition", QUE.
6. Setven Holzner, "Java2 Black Book", dreamtech.

B. Sc. (IT) Final Semester -VI

Paper III

215: 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

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

Books:

1. John W. Rittinghouse and James F. Ransome, "Cloud Computing Implementation, Management and Security", 2010, CRC Press, Taylor & Francis Group, Boca Raton London New York
2. Alfredo Mendoza, "Utility Computing Technologies, Standards, and Strategies", Artech House INC,
3. 2007. [Unit -11I to Unit V]
4. Bunker and Darren Thomson, "Delivering Utility Computing", 2006, John Wiley & Sons Ltd.
5. George Reese, "Cloud Application Architectures", O'reilly Publications, 2009.

B. Sc. (IT) Final Semester -VI

Paper IV

216: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

Books

1. Vikram Pudi, Data Mining Oxford University Press
2. Arun K Pujari Data Mining Technique, University Press (India) Private Limited
3. Alex Berson, S. J. Smith, Data Warehousing, Data Mining & OLAP, TMH

B. Sc. (IT) Final Semester -VI

Paper V

217: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, Actionsript.

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.

TEXT BOOK:

1. Ranjan Parekh, PRINCIPLES OF MULTIMEDIA, TMH
2. Ashok Banerji, Ananda Mohan Ghosh, Multimedia Technologies, McGraw Hill Publication

B. Sc. (IT) Final Semester -VI

Paper VI

218: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.

Text Books:

1. Operation Research by Kanti Swarup, P. K. Gupta, Man Mohan [Sultan]
2. Operation Research by R. Panneerselvam [PHI]
3. Introduction to Operation Research by Billy E. Gillet [TMH]
4. Operation Research by Hira Gupta
5. Operation Research Problems and Solutions by Sharma J. K. [MacMillan]
6. Operation Research Theory and Application by Sharma J. K., [MacMillan]

219:Practical-I

220:Practical-II

221:Practical-III

M.Sc. (Computer Science)

Semester I

Paper 1

222: 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.

Books :

1. Discrete Mathematical Structures By Bernard Kolman c, Busby & Sharon Ross [PHI]
2. Discrete Mathematical Structures with Application to computer science By J.P.Tremblay & R.Manohar [Tata McGraw –Hill]
3. Combinational Mathematics By.C.J.Liu

Reference Books:

1. Discrete Mathematics with Graph Theory By Goodaire [PHI]
2. Discrete Mathematics by J.K.Sharma (McMillan)
3. Discrete Mathematics and its Applications By Kenneth Rosen (TMH)
4. Discrete Mathematics By Seymour Lipschutz, Marc Lipson (TMH)
5. Discrete Mathematics : Rajendra Akerkar, Pearson

Paper 2

223: 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, 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.

Books:

1. Complete Reference by Herbert Schildt (TMH)
2. Programming with Java By C Muthu (McGraw Hill)
3. Black Book on java.

Paper 3

224: 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.

Books:

- 1.Digital Electronics by Gothman(PHI)
- 2.Digital and analogue technique by Navaneeth, Kale and Gokhale
- 3.Fundamental of Micropocessor by B Ram
- 4.Microcomputers Systems: The 8086/8088 family by Liu. Gibson
5. Modern Digital Electronics By Jain (TMH)

Paper 4

225: 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 three-layer architectures, communication between clients and servers.

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.

Books :

1. Fundamental of Database Systems by R. Elmasri; S. Navate; Benjamin Cummings;
2. Introduction to database systems by C. J .Date
3. Database system concept by Korth
4. DBA Handbook oracle press by Loney

Reference Books:

1. Principles of Database Management by James Martin
2. Relational database design for Micro computers Application by Prentice Hall (Jackson)
3. Database Management Systems by Bipin Desai

226:Practical-I

227:Practical-II

228:Seminar

M.Sc. (Computer Science)
Semester II
Paper 1
229: 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.

Books :

1. Programming Microsoft Visual C++ by D. J. Kruglilski, G Shepherd and Scot Wingo Publication : Microsoft Press Fifth Edition.

Reference Books:

1. Visual C++ 6 From The Ground Up: Mueller: TMH Publication
2. VC++ 6 The Complete Reference: Pappas, TMH Publication

Paper 2

230: 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.

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 LF (O) 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.

Books :

1. Introduction to Automata Theory, Languages and Computation: John E. Hopcroft & Jeffrey D. Ullman.
2. Compilers Principles, Techniques and Tools Aho, Ullman, Ravishethi, Pearson Education.
3. Theory of Computer Science : E. V. Krishnamoorthy.
4. Theory of computer Science : K. L. P. Mishra.

Reference Books:

1. D. I. A. Cohen : Introduction to Computer Theory (JW)
2. H. R. Lewis & C. H. Papadimitriou : Elements of Theory Of Computation (PHI)
3. J. Carroll and D. Long : Theory of Finite Automata (PHI)
4. M. Davis & Weyukur : Computability, Complexity & Languages.
5. M. Machtey & P. R. Young : An introduction to General Theory of Algorithm (Elsevier).
6. Zvi Havi : Switching and Finite Automata Theory (TMH).

Paper 3

231 : 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.

Books :

1. Computer Architecture and Organization by Tenenbaum
2. Computer Architecture and Organization by J. P.Hayes.
3. Parallel Processing by Hwang
4. Computer Organization by Hamacher, Vranesic, Zaky (TMH)

Paper 4

232: 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, B-spline curve, Hidden surfaces, Hidden lines, Z-buffer.

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.

Books :

1. Computer Graphics by M. Pauline Baker, Donald Hearn, 2nd Edition PHI.
2. Mathematical Element for Computer Graphics By. David F. Roger., J. Alan Adams, 2nd Edition, Tata McGHill.

Reference Books:

1. Principles of Interactive Computer Graphics By. William. M. Newmann. 2nd Edition Mc. Graw Hill.
2. Procedural Element for Computer Graphics By. David F. Roger. Mc. Graw Hill.
3. Computer Graphics By A.P. Godse, 2nd Editio TPPublication,
4. Computer Graphics By V.K. Pachghare, 2nd Edition, Laxmi Publication
5. Computer Graphics By Apurva Desai (PHI)

233:Practical-I

234:Practical-II

235:Seminar

M.Sc.(Computer Science)
Semester III
Paper 1
236: 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.

Books :

1. Computer Networks – Andrew S Tanenbum (PHI)
2. Network Security and Essentials: Application and standers
3. Willam Stalling – Pearson Education.
4. Cryptography and network security
5. Willam Stalling – Pearson Education.

Reference Books:

1. Internet Security: Timspeed, Juanita Ellis, Digital Press Publication
2. Internet Security: Jan L. Harington, Morgan Kaufmann Publication
3. Firewall Network System: John R. Vacca, Scott R. Ellis, Digital Press
4. Network Algorithm, George Varghese, Morgan Kaufmann Publication
5. TCP/IP Addressing: Buck Graham, Morgan Kaufmann Publication
6. Data Communication and Networking: Behrouz A. Forouzan, TMH.

Paper 2

237: 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 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.

Books :

1. Software Engineering, A practitioner's Approach- Roger S. Pressman, 6th edition. McGrawHill International Edition.
2. Software Engineering- Sommerville, 7th edition, Pearson education.

Reference Books:

1. Software Engineering- K.K. Agarwal & Yogesh Singh, New Age International Publishers
2. Software Engineering an Engineering approach- James F. Peters, Witold Pedrycz, John Wiely.
3. Systems Analysis and Design- Shely Cashman Rosenblatt, Thomson Publications.
4. Software Engineering principles and practice- Waman S Jawadekar, The McGraw-Hill.

Paper 3

238: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; 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,

Books :

1. Programming with Microsoft ASP.NET 3.5 by Dino Esposito, Microsoft Press
2. Programming with Microsoft ASP.NET 4.0 by Microsoft Press
3. The Complete Reference ASP.NET by MacDonald(TMh)

Paper 4

239: Mobile Computing

Unit-1 :

Mobile Communications: An Overview: Mobile Communication, Mobile Computing, Mobile Computing Architecture, Mobile Devices, Mobile System Networks, Data Dissemination, Mobility Management, Security Mobile Devices and Systems: Mobile Phones, Digital Music Players, Handheld Pocket Computers, Handheld Devices: Operating Systems, Smart Systems, Limitations of Mobile Devices, Automotive Systems GSM and Similar Architectures: GSM-Services and System, Architecture, Radio Interfaces, Protocols, Localization, Calling Handover, Security, New Data Services, General Packet Radio Service, High-speed Circuit Switched Data, DECT

Unit-2 :

Wireless Medium Access Control and CDMA based Communication: Medium Access Control, Introduction to CDMA-based Systems, Spread Spectrum in CDMA Systems, Coding Methods in CDMA, IS-95 cdma One System, IMT- 2000, i - m o d e , O F D M , Mobile IP Network Layer: IP and Mobile IP Network Layers, Packet Delivery and Handover Management, Location Management, Registration, Tunnelling and Encapsulation Route Optimization, Dynamic Host Configuration Protocol, Mobile Transport Layer, Conventional TCP/IP Transport, Layer Protocols, Indirect TCP, Snooping TCP, Mobile TCP, Other Methods of TCP-layer Transmission for Mobile Networks, TCP Over 2.5G/3G Mobile Networks

Unit-3 :

Databases: Database Hoarding Techniques, Data Caching, Client-Server Computing and Adaptation, Transactional Models, Query Processing, Data Recovery Process, Issues relating to Quality of Service, Data Dissemination and Broadcasting Systems: Communication Asymmetry, Classification of Data-Delivery Mechanisms, Data Dissemination Broadcast Models, Selective Tuning and Indexing Techniques, Digital Audio Broadcasting, Digital Video Broadcasting, Data Synchronization in Mobile Computing Systems: Synchronization, Synchronization Software for Mobile Devices, Synchronization Protocols, SyncML Synchronization Language for Mobile Computing, Sync4J (Funambol), Synchronized Multimedia ,Markup Language (SMIL)

Unit-4 :

Mobile Devices Server and Management: Mobile Agent, Application Server, Gateways, Portals, Service Discovery, Device Management, Mobile File Systems, Security, Mobile Adhoc and Sensor Networks: Introduction to Mobile Ad-hoc Network, MANET, Wireless Sensor Networks, Applications Wireless LAN, Mobile Internet Connectivity, and Personal Area Network: Wireless LAN (WiFi) Architecture and Protocol Layers, WAP 1.1 and WAP 2.0, Architectures, XHTML-MP (Extensible Hypertext Markup Language Mobile Profile), Bluetooth-enabled Devices Network, Layers in Bluetooth Protocol, Security in Bluetooth Protocol, IrDA, ZigBee Mobile Application Languages XML, Java, J2ME, and Java Card: Introduction, XML, JAVA, Java 2 Micro Edition (J2ME), JavaCard, Mobile Operating Systems : Operating System PalmOS, Windows CE, Symbian OS, Linux for Mobile Devices 530

Books :

1. Mobile Computing, Raj Kamal, Oxford University Press

Reference Books:

1. Mobile Communications Jochen Schiller, Addison-Wesley.
2. Handbook of Wireless Networks and Mobile Computing, Stojmenovic and Cacute, Wiley,
3. Mobile Computing Principles: Designing and Developing Mobile
4. Applications with UML and XML, Reza Behravanfar, Cambridge University Press,

240:Practical-I

241:Practical-II

242:Seminar

M.Sc. (Computer Science)
Semester IV
Paper 1
243: 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 Itemset, 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

Books :

1. Introduction to Data Mining by Tan, Steinbach, Kumar.
2. Data Mining: Concepts and Techniques by Jiawei Han, Micheline Kamber, Morgan Kaufmann

Reference Books:

1. Data Mining: Practical Machine Learning Tools and Techniques by Ian H. Witten and Eibe Frank, Morgan Kaufmann, 2nd Edition (2005).
2. Principles of Data Mining: David Hand, Heikki Mannila & Padhraic Smyth, PHP Publication.

Paper 2

244: 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.

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,

Books :

1. Artificial Intelligence by Elaine Rich, Mcgrawhill Inc.
2. Artificial Intelligence and Expert Systems – Jankiraman, Sarukes (M)

Reference Books:

1. Expert System : Theory and Practice- Ermine (PHI)
2. Lisp Programming – Rajeo Sangal – (TMH)
3. Rule based Expert System – M.Sasikumar (Narosa)
4. Artificial intelligence – Russell-Pearson- Ist Text book.
5. Principles of AI- Nils Nilson
6. A.I. by R.J.Winston - Pearson
7. ES : Theory and Practice- Ermine – PHI.
8. Int. ti Expert System – Jackson – Pearson.

Paper 3

245: 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 notation- Conditional 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 search- sorting- 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 & Branch Bound: Traversing trees- Depth first search of directed and undirected graph- Breadth first search- Back tracking- Branch and bound- The minimax principle, Introduction to NP- Completeness; Classes P and NP- Polynomial reductions- NP- Complete Problems NP- Hard problems- Non- Deterministic algorithms.

Books :

1. Fundamentals of Algorithms - Gilles Brassard & Paul Bratley. Prentice-Hall (India)Ltd.

Reference Books:

1. Fundamentals of Computer Algorithms by Ellis Horowitz & Sartaj Sahani. Galgotia Publication.
2. Computer Algorithms: Introduction to Design & Analysis. Sara Baase & Alien Van Gelder. Addison Wesley Publishing Company.

Paper 4

246: Parallel Computing

Unit-1 :

Introduction to Parallel Computing: Motivating Parallelism, Scope, Applications, Parallel Programming Platforms: Implicit Parallelism: Limitations of Memory System Performance, Dichotomy of Parallel Computing Platforms, Physical Organization of Parallel Platforms, Communication Costs in Parallel Machines, Routing Mechanisms for Interconnection Networks, Impact of Process-Processor Mapping and Mapping Techniques

Unit-2 :

Principles of Parallel Algorithm Design: Preliminaries ,Decomposition Techniques, Characteristics of Tasks and Interactions, Mapping Techniques for Load Balancing, Methods for Containing Interaction Overheads, Parallel Algorithm Models, Basic Communication operations:One-to-All Broadcast and All-to-One Reduction, All-to-All Broadcast and Reduction, All-Reduce and Prefix-Sum Operations, Scatter and Gather, All-to-All Personalized Communication, Circular Shift , Improving the Speed of Some Communication Operations

Unit-3 :

Analytical Modeling of Parallel Programs: Performance Metrics for Parallel Systems, The Effect of Granularity on Performance, Scalability of Parallel Systems, Minimum Execution Time and Minimum Cost-Optimal Execution Time, Asymptotic Analysis of Parallel Programs, Other Scalability Metrics, Programming Using the Message Passing Paradigm: Principles of Message-Passing Programming, The Building Blocks: Send and Receive Operations , MPI: the Message Passing Interface, Topologies and Embedding, Overlapping Communication with Computation, Collective Communication and Computation Operations, Groups and Communicators,

Unit-4 :

Programming Shared Address Space Platforms: Thread Basics, Why Threads? The POSIX Thread API, Thread Basics: Creation and Termination, Synchronization Primitives in Pthreads, Controlling Thread and Synchronization Attributes, Thread Cancellation, Composite Synchronization Constructs, Tips for Designing Asynchronous Programs, OpenMP: a Standard for Directive Based Parallel Programming, Dense Matrix Algorithms: Matrix- Vector Multiplication, Matrix-Matrix Multiplication, Solving a System of Linear Equations Sorting: Issues in Sorting on Parallel Computers, Sorting Networks, Bubble Sort and its Variants, Quicksort, Bucket and Sample Sort, Other Sorting Algorithms, Graph Algorithms: Minimum spanning tree Prim's Algorithm, Single-Source Shortest Paths: Dijkstra's Algorithm Search Algorithms for Discrete Optimization Problems: Sequential Search Algorithms, Search Overhead Factor, Parallel Depth-First Search, Parallel Best-First Search, Speedup Anomalies in Parallel Search Algorithms, Dynamic Programming: Overview of Dynamic Programming, Serial Monadic DP Formulations, Monadic DP Formulations, The Longest-Common- Subsequence Problem, Serial Polyadic DP Formulations, Floyd's All-Pairs Shortest-Paths Algorithm, Nonserial Polyadic DP Formulations, The Optimal Matrix-Parenthesization Problem, Fast Fourier Transform: The Serial Algorithm, The Binary-Exchange Algorithm, The Transpose Algorithm

Books :

1. Introduction to Parallel Computing, Ananth Grama, Pearson Education

Reference Books:

1. Fundamental of Paralle Processing, Harry F. Jordan, Gita Alaghband, Pearson Education
2. Parallel Programming, Michael Allen, Barry Wilkinson, Pearson Education

247:Practical-I

248:Practical-II

249:Seminar

250:Project

Books :

1. Introduction to Parallel Computing, Ananth Grama, Pearson Education

Reference Books:

1. Fundamental of Paralle Processing, Harry F. Jordan, Gita Alaghband, Pearson Education
2. Parallel Programming, Michael Allen, Barry Wilkinson, Pearson Education

247:Practical-I

248:Seminar

249:Project