

**Mahakaushal University,
Jabalpur (M.P.)**



**Syllabus For B.Sc (Computer Science)
2021-22**

Course Code : BSC(cs)

**Department of Computer Science
Faculty of Computer Science Application**

Duration of Course: 3 Years

Examination Mode: Year Examination

System: Non Grading

**Mahakaushal University
Village-Aithakheda, Mukunwara Road, Post-Tilwara
Jabalpur (M.P.) 482003**

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**Member
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Mahakaushal University, Jabalpur (M.P.)

Department of Higher Education Govt. Of
M.P. Under Graduate year wise syllabus
As recommended by central board of studies and approved by
The governor of M.P.

Class : B.A./B.Sc./B.Com./B.Sc.(Home Science)/BCA/B.A.(Mgt.) --- I Year
Subject : Foundation Course
Paper : I
Paper Name : (Hindi Language & Moral Values)
Compulsory/Optional: Compulsory
Max Marks : (Hindi Language = 25) +(Moral Values = 05)+ CCE 05 = 35

Particulars

Unit-I	हिन्दी भाषा स्वतंत्रता पुकारती (कविता) – जयशंकर प्रसाद पुष्प की अभिलाषा (कविता) – माखनलाल चतुर्वेदी वाक्य संरचना और अशुद्धियां (संकलित)
Unit-II	हिन्दी भाषा नमक का दरोगा (कहानी) – प्रेमचंद एक थे राजा भोज (निबंध) – डॉ. त्रिभुवननाथ शुक्ल पर्यायवाची, विलोम, एकांर्थी, अनेकार्थी एवं शब्दयुग्म शब्द (संकलित)
Unit-III	हिन्दी भाषा भगवान बुद्ध (निबंध) – स्वामी विवेकानंद लोकतंत्र एक धर्म है (निबंध) – डॉ. सर्वपल्ली राधाकृष्णन नहीं रुकती है नदी – हीरालाल बाछातिया पल्लवन
Unit-IV	हिन्दी भाषा अफसर (निबंध) – शरद जोशी हमारी सांस्कृतिक एकता (निबंध) – रामधारी सिंह दिनकर (एक भारत श्रेष्ठ भारत के अन्तर्गत) संक्षेपण (संकलित)
Unit-V	नैतिक मूल्य नैतिक मूल्य परिचय एवं वर्गीकरण (आलेख) – डॉ. शशि राय आचरण की सभ्यता (निबंध) – सरदार पूर्णसिंह अंतर्ज्ञान और नैतिक जीवन (लेख) – स्वामी श्रद्धानंद

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Class : B.A./B.Sc./B.Com./B.Sc.(Home Science)/BCA/B.A.(Mgt.) --- I Year
Subject : Foundation Course
Paper : II
Paper Name : English Language
Compulsory/Optional: Compulsory
Max Marks : 30 + Internal Assessment (5) = 35

Particulars

Unit-I	Where the mind is without fear : Rabindranath Tagore. The Hero: R.K. Narayan. Tryst with Destiny Jawaharlal Nehru. Indian weavers : Sarojnini Naidu. The portrait of a lady : Khushwant Singh. The Solitary Reaper : Willian Wordsworth.
Unit-II	Basic Language Skills : Vocabulary, Synonyms, Antonyms, Word formation, Prefixes Suffixes.
Unit-III	Basic Language Skills : Uncountable nouns, verbs, tenses, adverbs.
Unit-IV	Comprehension / Unseen Passage.
Unit-V	Composition and Paragraph writing.

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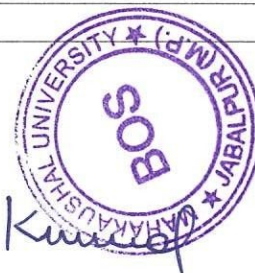
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Class : B.A./B.Sc./B.Com./B.Sc.(Home Science)/BCA/B.A.(Mgt.) --- I Year
Subject : Foundation Course
Paper : III
Paper Name : (Entrepreneurship Development)
Compulsory/Optional: Compulsory
Max Marks : 25 + Internal Assessment (5) = 30

Particulars

Unit-I	Entrepreneurship Development - Concept and importance, function of enterpriser, Goal determination- Problems Challenges and solutions.
Unit-II	Project Proposal - need and Objects – Nature of organization, Production Management, Financial Management, Marketing Management, Consumer Management.
Unit-III	Role of regulatory Institutions, Role of development Organizations and self employment oriented schemes, Various growth schemes.
Unit-IV	Financial Management for Project – Financial institution and their role, Capital estimation and arrangement, cost and price determination, accounting management
Unit-V	Problem of entrepreneur – Problem relating capital, Problem relating Registration, administration problem and how to overcome

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BBCS101-T Computing Logics & Reasoning

UNIT-I

Marks -10

Number Systems Natural numbers integers rational numbers real numbers Complex arithmetic module a positive integer (binary, octal, decimal & hexadecimal number systems) radix & representation of integers, representing negative & rational numbers, floating point notation

UNIT-II

Marks -10

Binary arithmetic, 2's Complement arithmetic, conversion of numbers from one of binary / octal / decimal / Hexadecimal number system to other number systems codes (natural BCD, Excess -3 gray, octal, hexadecimal alphanumeric – EBCDIC & ASCII) error codes

UNIT-III

Marks -10

Law of formal logic, connectivity, propositions, conditional WFF, tautology, Contradiction, Logical equivalence, Law of Logic, duality, Logical implications Normal forms, Sets, Sub-sets, finite & infinite Sets universal, Power, disjoint sets, Property of sets, union intersection sets, distributive Complement & Property of Complement, Venn diagram, difference, Cartesian Product Setc.

UNIT-IV

Marks -10

Relation Property, irreflexive, asymmetric, compatible universal complementary relation, equivalence class, co-ordinate diagram, transitivity, extension, closure matrix representation and diagraph, functions, mapping composition of functions, associative mapping composition of functions, associative mapping, inverse mapping characteristics functions, functions, recursions linear recursions relation, non – homogenous relations

UNIT-V

Marks -10

Partial ordering, total order set, dual order, Hasse Diagram, lexicographic ordering, Least & greatest element, minimal & maximal element, Upper & lower bound, well – order Set, Operations well – ordering theorem, lattice property, Bound, lattices, direct product, Boolean algebra, homomorphism minimization function, gates, Boolean algebra & applications

TEXT & REFERENCE BOOKS:

COMPUTERS TODAY, BY S.K BASANDRA, GALGOTIA PUBLICATIONS. FUNDAMENTALS OF INFORMATION TECHNOLOGY, CHANDRON & MATHEWS LEON, VIKAS PUBLICATIONS. DOS QUICK REFERENCE GUIDE, GALGOTIA PUBLICATIONS.

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BBCS102-T

Basic of Computer

UNIT-I

Marks -10

Introduction to computer : Definition, characteristics classification of computers, Analog computers, digital computers, hybrid computers, classification of computer on the basis of size & speed, different type of computers, Generation of computer.

UNIT-II

Marks -10

Computer keyboard, pointing device, mouse, track ball, touch pad, joystick, touch-sensitive screens, pen based systems, digitizer, data scanning devices, optical recognition systems bar-code readers, optical-mark readers, optical scanner, drum scanners, hand scanner flatbed scanner, web camera, gamepad digital camera.

UNIT-III

Marks -10

Hard copy devices: Printer, impact printers, daisy wheel, dot matrix printer, line printer, chain printers, comb- printers. Non- impact printers, DeskJet , inkjet Printers Laser Printer, thermal transfer Printer, barcode printers. Computer display: CRT, LCD, Projection displays, plasma display panel display standard , mono Chrome display HGA, CGA, EGA, VGA, MGA, SVGA, XGA, QVGA, SXGA, UXGA. Introduction to memory, Classifications random - access memory, volatile memory, Non volatile memory , flash memory, read only memory, secondary memory, cache memory, auxiliary storage memory hierarchy, storage device, magnetic tape, magnetic disk, floppy disk, hard disks, CD, DVD, Magneto optical.

UNIT-IV

Marks -10

Number system, binary, octal, hexadecimal, addition, subtraction, multiplications, computer code: BCD, ASC II EBCDIC code, Excess -3 code, gray code, software user interface, system software, programming software application software logic gates & Boolean algebra representation & simplification by kmap:

Computer viruses: Introduction, history, types of computer viruses, classification of viruses' way to catch a computer virus, symptoms of a computer virus.

Application of Computer: Desktop Publishing, sports, design manufacturing research & design, military, robotics, planning and management, marketing, medicine & health case, arts communication, scientific education.

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UNIT-V

Marks -10

Introduction Of Internet, History, IP, TCP & UDP, Application Protocol, word wide web, how the web works, web standards website, overview, types of websites, electronic mail, internet , email header, saved message file extension messages & mailboxes, introduction to intranet, user advantages disadvantages,

Introduction to data ware house, Components of a data ware house, different methods of storing data in a data warehouse, advantages of using data ware house.

Reference Books:-

1. COMPUTERS TODAY, BY S.K BASANDRA, GALGOTIA PUBLICATIONS.
2. FUNDAMENTALS OF INFORMATION TECHNOLOGY ALEXIS LEON & MATHEWS LEON,, VIKAS
3. DOS QUICK REFERENCE RAJEEV MATHUR,, GALGOTIA PUBLICATIONS

Computing Reasoning lab:-

Propositional Logic:

Constructing and evaluating truth tables.

Simplifying logical expressions using Boolean algebra.

Predicate Logic:

Translating natural language statements into predicate logic.

Proving statements using rules of inference.

Proof Techniques:

Direct proofs, proof by contradiction, and proof by contrapositive.

Mathematical induction and structural induction.

Set Theory:

Operations on sets (union, intersection, difference, complement).

Venn diagrams and their applications in problem-solving.

Functions and Relations:

Understanding and proving properties of functions (injective, surjective, bijective).

Working with relations (reflexive, symmetric, transitive, equivalence relations).

Graph Theory:

Representing graphs (adjacency matrices, lists).

Graph traversal algorithms (BFS, DFS).

Shortest path algorithms (Dijkstra's, Floyd-Warshall).

Algorithms and Complexity:

Analyzing time and space complexity of algorithms.

Understanding and applying basic sorting and searching algorithms.

Automata Theory:

Designing finite automata for given regular expressions.

Converting between deterministic and non-deterministic finite automata.

Formal Languages and Grammars:

Working with context-free grammars.

Parsing techniques and syntax trees.

Computational Problem-Solving:

Implementing algorithms to solve computational problems.

Debugging and optimizing code for efficiency.

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BBCS103-T

Office Automation PC Software

UNIT-I

Marks -10

MS-windows: Introduction to MS-Windows, concept of GoI, Windows explorer control panel, accessories, running applications under ms-windows.

UNIT-II

Marks -10

MS word: Introduction to MS- word standard toolbar, word wrap, text formation, formatting paragraphs applying effects to text, applying Animation text.

UNIT-III

Marks -10

Introduction to MS- Excel, working with toolbar, formation, formulas, data management, graphs & charts, macros & other additional functions.

UNIT-IV

Marks -10

MS- Power Point: Introduction to power point, slide creating slideshow, adding graphics, formation customizing & printing

UNIT-V

Marks -10

MS- Access: Introduction, understanding data bases, creation a database & tables automatically, creating and customizing a form adding, editing, sorting & Searching of records creating & printing reports, queries, creation a database & application, linking, importing & exporting data form, creating reports, creating charts & pivot tables

TEXT & REFERENCE BOOKS:

WINDOWSXP COMPLETE REFERENCE. BPB PUBLICATIONS MS OFFICE XP COMPLETE BPB PUBLICATION MS WINDOWS XP HOME EDITION COMPLETE, BPB PUBLICATION.

JOE HABRAKEN, MICROSOFT OFFICE 2000, 8 IN 1, BY, PRENTICE HALL OF INDIA
IT TOOLS AND APPLICATIONS, BY A. MANSOOR, PRAGYA PUBLICATIONS, MUMBAI

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PC Software LAB:-

Operating System Basics:

Installing and configuring a Windows or Linux operating system.

Managing files and directories using command line interfaces.

Office Productivity Software:

Creating and formatting documents using Microsoft Word or LibreOffice Writer.

Developing spreadsheets with complex formulas and charts using Microsoft Excel or LibreOffice Calc.

Designing presentations with animations and multimedia using Microsoft PowerPoint or LibreOffice Impress.

Internet and Web Browsing:

Configuring and optimizing web browsers.

Managing bookmarks, history, and extensions.

Basic web security practices and troubleshooting connectivity issues.

Email Management:

Configuring email clients (e.g., Outlook, Thunderbird).

Managing inboxes, filters, and rules.

Understanding email protocols (POP3, IMAP, SMTP).

Database Management:

Creating and managing databases using Microsoft Access or MySQL.

Writing basic SQL queries to retrieve, update, and manipulate data.

Designing forms and reports for data entry and presentation.

System Utilities and Maintenance:

Using disk cleanup and defragmentation tools.

Managing system startup programs and services.

Performing system backups and restores.

Networking Fundamentals:

Setting up and configuring a local area network (LAN).

Troubleshooting network issues using tools like ping, tracert, and ipconfig.

Understanding basic network security measures, such as firewalls and encryption.

Basic Programming or Scripting:

Writing simple scripts in Python, Bash, or PowerShell to automate tasks.

Debugging and running programs.

Understanding basic programming concepts like loops, conditionals, and functions.

Virtualization:

Setting up and managing virtual machines using software like VirtualBox or VMware.

Understanding the benefits and uses of virtualization.

Configuring network settings for virtual machines.

Graphics and Multimedia Software:

Editing images using software like Adobe Photoshop or GIMP.

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BBCS-104-T

C Programming & Data Structure

UNIT-I

Marks -10

"C" Language: Types, Operators & expressions, Variable names data types & sizes, constants, declarations, operator, expressions & type conversions.

UNIT-II

Marks -10

Control Statement, loop, jump, functions & Program Structure, Pointer and arrays, structure, union
& typed of file handling , file function.

UNIT-III

Marks -10

Data Structures: Arrays, stacks, Queues d-queue, linked lists, single link list, double link list, trees, threaded tree, b-tree, graphs, depth first search, breath, first search kruskal algorithm, prism algorithm prefix, post fix, pnfix Pn-order, Pre- order, Post- order, recursive functions.

UNIT-IV

Marks -10

Sorting: Internal & external sorting Quick sort, merge. – Sort, bubble, Pnsertion , selection sorting

UNIT-V

Marks -10

Shortest Path trowel salesman problem, searching techniques & merging algorithms.

TEXT & REFERENCEBOOKS:

PROGRAMMING IN C BY E. BALAGURUSWAMI, TMH PUBLICATIONS

PROGRAMMING WITH C BY GOTTFRIED, SCHAUMS OUTLIE SERIES, TMH PUBLICATIONS

THINKINGIN C BY MAHAPATRA, PHI PUBLICATIONS GRAPHICS

PROGRAMMING IN C BY STEVENS, BPB PUBLICATION PROGRAMMING IN C BY R SUBBURAJ, VIKAS PUBLISHING

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BBCS-105

Circuit Analysis & Electronics device

UNIT-I

Marks -10

Number system & Codes:- Binary decimal, octal, Hexadecimal & their interconversions.

Codes: BCD, Excess-3 Gray code etc.

UNIT-II

Marks -10

Digital electronics signals & switches : - Concept on digital signal, logic levels, Active high, Active low Signals, Switching characteristic of semiconductor diode, transistor

UNIT-III

Marks -10

Logic Gates: - AND, OR, NOT, NOR, NAND, EX-OR, EX-NOR Operations and their truth : k maps & Quine . Mcclusky

UNIT-IV

Marks -10

Arithmetic operations: Binary Addition, Subtraction multiplication , division, as complement Subtraction circuits: Half- Adder, Half Subtractor, Full Subtractor, 2- bit by 2-bit multiplier various code converters

Multiplexers (MUX): working of mux, implementation of expression using MUX

Demultiplexer (DEMUX) Implementation of expression using Demux , Decoder. Flip-Flop

: Concept Of Sequential Circuit, S-R, JK Preset & Clear Master.

UNIT-V

Marks -10

Slave JkD, T Flip Flops Their Truth Tables & excitation tables, Conversion from one type to another type of Flip Flop Registers. Logic Timeliner & their characteristics:- Characteristic of digital ICs.

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TEXT & REFERENCE BOOKS

1. Electrical Engineering Fundamentals by Vincent Del Toro
2. Electrical and Electronics Engineering for Scientists by K.A.Krishnamurthy and M.R.Raghuveer
3. Fundamentals of Electrical Engineering by Rajendra Prasad
4. Semiconductor Physics and Devices by D. A. Neamen
5. Microelectronic Devices by E.S. Yang
6. Solid State Electronic Devices" by B.G. Streetman
7. Microelectronics by J. Millman and A. Grabel
8. Microelectronic Circuits by A.S. Sedra and K.C. Smith
9. Microelectronics: An Integrated Approach by R.T. Howe and C.G. Sodini

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BBCS-106

DBMS Using FoxPro Programming

UNIT-I

Marks -10

Object of database systems, data abstraction, data definition language, data manipulation language, database manager, database administrator, trade offs between utilities of data & Control of data.

UNIT-II

Marks -10

Entity Relationship model, entities & entity sets their relationship, mapping constraints, generalization aggregation, use of ER model for the design of databases, implementation trade offs of Sequential random, index Sequential file organization relational algebra, relational calculus and normalization up to DkNF.

UNIT-III

Marks -10

Relational Query Language: DDL, DML, database integrity, domain integrity, entity integrity, referential integrity, Security, authorization, access Matrix, Concurrency, Locks, Serializability recovery.

UNIT-IV

Marks -10

Introduction to Fox Pro: Creation of database, field types, adding records, editing & deleting of data viewing data, navigating in data file searching of data memory variables & arrays.

UNIT-V

Marks -10

Sorting the database, indexing, compound index files Managing multiple data files, Setting environment using SET commands, Setting filters, setting relations date & time functions, character & file functions. Programming with Fox-Pro, input & Output, Making decisions, loop constructs, debugging programs setting up of screen displays, procedures and with defined functions, creating & Printing for matted reports.

TEXT & REFERENCE BOOKS:

ELMASRI AND NAVATHE, FUNDAMENTALS OF DATABASE SYSTEMS [4E], PEARSON EDUCATION

RAGHU RAMAKRISHNAN, JOHANNES GEHRKE, DATABASE MANAGEMENT SYSTEMS [3E], MCGRAW-HILL

KORTH, SILBERCHATZ, SUDARSHAN, DATABASE SYSTEM CONCEPTS, MCGRAW-HILL. PETER ROB AND GORDON, DATABASE SYSTEMS, DESIGN, IMPLEMENTATION AND MANAGEMENT, THOMSON LEARNING

C.J. DATE, LONGMAN, INTRODUCTION TO DATABASE SYSTEMS, PEARSON EDUCATION

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DBMS LAB:-

1. Database Design:

- Creating Entity-Relationship (ER) diagrams to model data.
- Converting ER diagrams to relational schemas.
- Normalization of database tables up to the third normal form (3NF).

2. SQL Basics:

- Writing basic SQL queries for data retrieval (SELECT statements).
- Using WHERE clause with different conditions and operators.
- Sorting results using ORDER BY.

3. Advanced SQL Queries:

- Joining tables using INNER JOIN, LEFT JOIN, RIGHT JOIN, and FULL JOIN.
- Using GROUP BY and HAVING clauses for aggregation.
- Subqueries and nested queries.

4. Data Definition Language (DDL):

- Creating, altering, and dropping tables.
- Defining constraints like primary keys, foreign keys, unique, and not null.
- Using indexes to optimize query performance.

5. Data Manipulation Language (DML):

- Inserting, updating, and deleting records.
- Using transactions to ensure data integrity with COMMIT and ROLLBACK.
- Implementing batch updates and handling exceptions.

6. Stored Procedures and Functions:

- Creating and executing stored procedures.
- Writing user-defined functions.
- Understanding the differences between procedures and functions.

7. Triggers and Views:

- Creating and managing triggers for automatic execution of SQL code.
- Using views to simplify complex queries and improve security.
- Understanding the use of materialized views.

8. Database Backup and Recovery:

- Performing database backups using different methods (full, incremental).

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- Restoring databases from backups.
- Understanding transaction logs and point-in-time recovery.

9. Database Security:

- Creating and managing user accounts and roles.
- Granting and revoking privileges.
- Implementing row-level and column-level security.

10. Database Performance Tuning:

- Analyzing and optimizing query performance.
- Using EXPLAIN PLAN to understand query execution plans.
- Identifying and resolving performance bottlenecks.

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Subject : Foundation Course
Paper : I
Paper Name : (Hindi Language & Moral Values)
Compulsory/Optional: Compulsory
Max Marks : (Hindi Language = 25) +(Moral Values = 05)+ CCE 05 = 35

Particulars

Unit-I	हिन्दी भाषा वह तोड़ती पत्थर (कविता) – सूर्यकान्त त्रिपाठी निराला दिमागी गुलामी (निबंध) – राहुल सांकृत्यायन वर्ण – (स्वर– व्यंजन, वर्गीकरण, उच्चारण स्थान)
Unit-II	हिन्दी भाषा नारीत्व का अभिशाप (निबंध) – महादेवी वमा चीफ की दावत (कहानी) – भीष्म साहनी विराम चिन्ह – (संकलित)
Unit-III	हिन्दी भाषा चली फगुनाहट बौरे आम (ललित निबंध) – विवेकी राय इन्द्रधनुष का रहस्य (वैज्ञानिक लेख) – डॉ. कपूरमल जैन संधि – (संकलित) पल्लवन
Unit-IV	हिन्दी भाषा सपनों की उड़ान (प्रेरक निबंध) – ए.पी.जे. अब्दुल कलाम हमारा सौरमण्डल (संकलित) समास (संकलित)
Unit-V	नैतिक मूल्य शिकागो व्याख्यान (व्याख्यान) – स्वामी विवेकानंद धर्म और राष्ट्रवाद (लेख) – महर्षि अरविन्द सादगी (आत्मकथा) – महात्मा गांधी चित्त जहाँ भय शून्य (कविता) – रवीन्द्रनाथ टैगोर

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Subject : Foundation Course
Paper : II
Paper Name : English Language
Compulsory/Optional: Compulsory
Max Marks : 30 + Internal Assessment (5) = 35

Particulars

Unit-I	Tree: Tina Morris. Night of the Scorpion: Nissim Ezekiel. Idgah : Premchand (translated by khushwant Singh). Letter of God : G.L. Swante (translated by Donald A. Yates). My Bank Account : Stephen Leacock. God sees the truth but waits : Leo Tolstoy.
Unit-II	Basic English Language : Idioms, Proverbs and Phrasal Verbs, Tenses, Prepositions, Determiners, Verbs Articles, Nouns & Pronouns.
Unit-III	Short Essay on given topics. Correspondence Skills (Formal & Informal letters and Application)
Unit-IV	Translation of sentences / passage English to Hindi and Hindi to English.
Unit-V	Drafting CV.

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Subject : Foundation Course
Paper : III
Paper Name : (Environmental Studies)
Compulsory/Optional: Compulsory
Max Marks : 30

Particulars

Unit-I	Study of Environment and Ecology : (a.) Definition and importance. (b.) Public participation and public awareness. (c.) Ecology – Introduction. (d.) Ecosystem – Concepts, components, structure & function, energy flow. food chain. food web, ecological pyramids and types.
Unit-II	Environmental Pollution and Population : (a.) Air, water, noise, Heat and nuclear pollution. definition, causes, effect and prevention of pollution. (b.) Population growth, disparities between countries. (c.) Population explosion, family welfare programme. (d.) Environment and human health. (e.) Cleanliness and disposal of domestic waste.
Unit-III	Natural Resources, Problems and Conservation : (a.) Water Resources. (b.) Forest Resources. (c.) Land Resources. (d.) Food Resources. (e.) Energy Resources.
Unit-IV	Bio-diversity and its Protection (a.) Introduction- Genetic, species and ecosystem diversity. (b.) Value of bio-diversity – Consumable use : Productive use. Social, Moral and Aesthetic values (c.) India as a nation of mega bio-diversity centre. bio-diversity at national and local levels. (d.) Threats to bio-diversity – Loss of habitat, poaching of wildlife, man and wildlife conflicts.
Unit-V	Disaster Management and Environment and Environmental laws : (a.) Disaster Management – flood, earthquake, cyclones and landslides. (b.) Conservation of laws for air and water pollution. (c.) Wildlife conservation laws. (d.) Role of information technologies in protecting environment and health

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BBCS-201-T

Computers Oriented statistical Methods

UNIT-I

Marks -10

Characteristics of Numerical Computation Approximation Significant, Digit, Errors Introduction to matrix, Types of Matrix Square, Row, column, Diagonal, Unit, Null, Upper- Triangular, Lower Triangular, Symmetric, Skew Symmetric.

UNIT-II

Marks -10

Operation of Matrix, trace, transpose, addition, Subtraction multiplication, determinant, inverse, Introduction to Linear Equations.

UNIT-III

Marks -10

Bisection Method, Method of successive approximation Method of false position, Newton's iteration method, Newton Raphoon Method Horner's method.

UNIT-IV

Marks -10

Gauss Jordan method, Gauss alimentation Method Iterative methods, Jacobi method of iteration, Gauss Sealed Iteration Method.

UNIT-V

Marks -10

Gregory Newton Forward & Backward interpolation formula Gauss forward and backward difference interpolation formula, interpolation with unequal intervals.

References :-

Gupta and Dasgupta : Fundamental Mathematical Statistics Vol. I. 2. Kishor S. Trivedi : Probability and Statistics with Reliability. 3. Kapoor & Saxena : Mathematical Statistics. 4. Gupta & Kapoor : Fundamentals of Mathematical Statistics. 5. P. Mayer : Introductory Probability 6. Weather Burn : Mathematical Statistics.

Computer Oriented LAB:-

1. Programming Fundamentals:

- Writing and debugging simple programs in languages like Python, Java, or C++.
- Implementing basic control structures: loops, conditionals, and functions.
- Understanding and using data types, variables, and operators.

2. Data Structures:

- Implementing and using basic data structures such as arrays, linked lists, stacks, and queues.
- Performing operations like insertion, deletion and traversal on these data structures.
- Understanding the use cases and efficiency of different data structures.

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2. Algorithms:

- Implementing sorting algorithms (e.g., bubble sort, merge sort, quick sort).
- Implementing searching algorithms (e.g., linear search, binary search).
- Understanding algorithm complexity and Big O notation.

3. Object-Oriented Programming (OOP):

- Creating classes and objects in an OOP language.
- Implementing inheritance, polymorphism, and encapsulation.
- Writing programs that use interfaces and abstract classes.

4. File Handling:

- Reading from and writing to files.
- Understanding different file formats (e.g., text, CSV, JSON).
- Performing file operations: open, close, read, write, and append.

5. Database Connectivity:

- Connecting to a database from a programming language (e.g., Python with SQLite, Java with MySQL).
- Executing SQL queries from within a program.
- Performing CRUD (Create, Read, Update, Delete) operations programmatically.

5. Web Development Basics:

- Creating simple web pages using HTML and CSS.
- Adding interactivity with JavaScript.
- Understanding the basics of web hosting and deployment.

7. Version Control Systems:

- Using Git for version control.
- Understanding basic Git commands: init, clone, add, commit, push, pull, branch, merge.
- Collaborating on projects using GitHub or GitLab.

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BBCS202-T

Analog Circuits and Communications

UNIT-I

Marks -10

Power supplies: Rectifiers- Half wave, full wave & bridge rectifiers- efficiency- Ripple factor- Regulation- Harmonic components in rectified output, Types of filters- choke -input (inductor) filter- Shunt Capacitor filter - Capacitor filter- L Section and O Section filters- Block diagram of regulated Power Supplier- Three terminal regulators (78XX&79XX).

UNIT-II

Marks -10

Principle and working of Switch mode power supply (SMPS) RC Coupled Amplifier Analysis and frequency response of Single Stage RC Coupled Amplifier Feedback: Positive and negative feedback- Effect of feedback on gain band width , noise input & output impedances.

UNIT-III

Marks -10

Operational Amplifiers: Differential Amplifier, Block diagram of op- amp, Ideal characteristics of op- Amp- Op- Amp Parameters- Input resistance- output resistance common - mode rejection ratio (CMMR) , Slew rate, offset Voltages Input bias current , Basic op-Amp circuits, inverting Op- Amp virtual ground, Non inverting op- Amp, frequency response of op-Amp, Interpretation of op- Amp datasheets.

UNIT-IV

Marks -10

Application of op- Amps: Summing amplifier, subtractor voltage follower Integrator, Differentiator, comparator Logarithmic amplifier, sine wave (Wein Bridge) and Square wave (Astable) , generators, Triangular wave generator , Mono stable , multi vibrator, Solving Simple second order differential equation Basic op-Amp Series regulator and shunt regulator.

UNIT-V

Marks -10

Communication: Need for modulation, Types of modulation, Amplitude, frequency & Phase modulation, Side Bands modulation index, Square law diode modulator, AM modulation , diode detector, Frequency modulation working of simple frequency of frequency modulation Am & FM modulators (Block diagram approach).

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References :

- A.K Sawhney
Measurements and Instrumentation
Electronic instrumentation H.L Kalsi
Network theory
William Hayt
Digital design Morris mano
Digital systems
Tocci & Widmer
Digital electronics
Modern digital electronics
Elements of
Electromagnetics
Engineering electromagnetic
Antenna and wave propagation
Elements of engineering eletromagnitics
R.P Jain, Sadiku, W.H. Hayt, K.D Prasad, Electromagnetic theory, N.N. Rao
Linear control system B.S Manke Control system engineering
I.J Nagrath
Control systems
Automatic control systems
B.C Kuo
Signal and system
Signals and systems
Alan V Oppenheim
Communication systems Simon Haykins
An introduction to digital and analog communications
Modern digital and analog communication systems
Simon Haykins
Singh and Sapre
Communication systems
Electronic communication systems
B.P. Lathi Integrated electronics
Jacob Millman Microelectronic circuits
Sedra and Smith
Electronic devices and circuits and analog electronics
Electronic devices and circuits
Op amp and digital integraed circuits
Solid state electronic devices Semiconductor devices
J.B Gupta Ramakant Gaekwad Streetma and Banerjee S.M Sze
A textbook on Analog circuits
Analog circuits A.Rajkuma

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BBCS203-T

Client Server Technology

UNIT-I

Marks -10

Client /Server Computing: Evolution of client /Server concept definition, history, need and inactivation for Client /Server approach, Client/Server environments, characterization of client/server computing, client/server types and Examples.

UNIT-II

Marks -10

Client /Server development tools, advantages of Client/ Server Technology, connectivity, user productivity reduction in network traffic, faster delivery of systems.

UNIT-III

Marks -10

The Role of Client: Client request for service, dynamic data exchange, ole, common object Cole, Request Broker Architecture (CORBA), Components of Client/ Server applications.

The Role of Server: Server Functions, Network Operating System, System application Architecture, Novel Netware LAN manager, Server operating System.

UNIT-IV

Marks -10

Architecture: Components of Client Server Architecture application partitioning the two-layer and three layer architecture Communication between Clients& Servers Use of APIs in Client/Server Computing, middle- ware technology in client / server computing Open System Inter connectivity (OSI) , Inter Process Communication (IPC).

UNIT-V

Marks -10

Client/ system Administration, LAN Network Management Privacy and Security Issue, Developing applications on RDBM, GUI design Concepts.

Reference Books

1. Hossein Bidgoli Editor-in-Chief
1. Daniel McFarland and
2. Darren B. Nicholson

Client/Server Computing for Technical Professionals: Concepts and Solutions Paperback – Import, 14 Sep 1995

by Johnson M. Hart (Author), Barry Rosenberg (Author)

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BBCS-204

Java Programming

UNIT-I

Marks -10

Introduction to Java, history, Characteristics, object oriented programming, data types, variables arrays, difference between java and C++

UNIT-II

Marks -10

Control Statements: Selection, iteration, jump statements operators, Introduction to Classes, fundamentals Constructor methods, Stack, Class, inheritance, creating multilevel hierarchy, method overriding packages and interfaces, exception handling, multithreaded programming I/o applets.

UNIT-III

Marks -10

Java Library, String handling, string comparison, string buffer, utility Classer, vector stack dictionary applet Class, introduction to AWT, working with frame windows.

UNIT-IV

Marks -10

Java beans, beans architecture, AWT components, Advantages of Java beans, beans Serialization, JDBC Class & Methods, API Components, JDBC Components Driver, Connectivity to database.

UNIT-V

Marks -10

Processing result and interfaces, RMI, Comparison of distributed and Non- distributed Java programs, Interfaces, RMI Architecture layer, ODBC, CORBA, CORBA Services and Products, CGI, Structure of CGI.

Reference Books

JAVA THE COMPLETE REFERENCE BY PATRICK NAUGHTON AND HERBERT SCHILDT. TMH PUBLICATION ISBN 0-07-463769-X
PROGRAMMING WITH JAVA BY E. BALAGURUSWAMY TMH PUBLICATIONS ISBN 0-07-463542-5
USING JAVA 1.2 BY JOSEPH WEBER. PHI — ISBN-81-203-1558-9

Java LAB:-

- **Write Code:** Students are required to write Java programs to solve specific problems or implement certain functionalities. This can include creating classes, methods, and using appropriate Java libraries.
- **Debug Code:** Students should demonstrate the ability to identify and fix errors in the code. This can involve syntax errors, runtime errors, and logic errors.
- **Understand Concepts:** Students need to show a good understanding of Java concepts such as object-oriented programming (OOP), data structures, exception handling, file I/O, and possibly more advanced topics like multithreading and networking.

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- **Implement Algorithms:** Students may be asked to implement common algorithms (e.g., sorting, searching) and data structures (e.g., linked lists, stacks, queues).
- **Use Development Tools:** Students should be familiar with Integrated Development Environments (IDEs) like IntelliJ IDEA, Eclipse, or NetBeans, and be able to use them efficiently for writing, testing, and debugging Java code.
- **Documentation:** Writing proper documentation and comments within the code is usually required to explain the logic and flow of the program.
- **Test Code:** Students must write and run test cases to verify that their code works as expected. This can include using JUnit for unit testing.
- **Version Control:** Basic knowledge of version control systems like Git might be required, including committing changes and possibly collaborating using repositories.
- **Understanding Java API:** Students should be able to utilize the Java Standard Library and understand how to read and use the official documentation to find the necessary classes and methods.
- **Problem-Solving:** Applying logical and analytical thinking to break down problems and develop solutions using Java.

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BBCS205-T

Computer Graphics

UNIT-I

Marks -10

Graphics Hardware: The functional Characteristics of the systems are emphasized, input devices: keyboard touch panel, light pens, graphic tablets, jay sticks, track ball, data glove, digitizer, image scanner mouse, voice Systems.

UNIT-II

Marks -10

Hard Copy devices: Impact and non-impact Printers such as line Printer, dot matrix, Laser, inkjet, electrostatic, flat bed and drum plotters.

UNIT-III

Marks -10

Video display devices: Refresh cathode ray tube, raster- scan displays, random scan displays, color CRT monitors, Direct View Storage tube, flat panel- displays, 3-D view devices, virtual reality, virtual reality, raster scan systems, random scan systems, graphics monitors and work stations.

UNIT-IV

Marks -10

Scan Conversion Algorithms for line, circle and ellipse Bresenham's algorithms, area filling techniques, character generation,

UNIT-V

Marks -10

2-dimensional graphics: Cartesian and Homogeneous co- ordinate system, Geometric trans formations (translation, scaling rotation, reflection, shearing, two dimensional viewing trans formation and clipping (line, polygon and text).

Reference Books

- 1.COMPUTER GRAPHICS : A PROGRAMMING, APPROACH – STEVEN HARRINGLOM (MGH)
- 2.COMPUTER GRAPHICS : SCHAUM'S OUTLINE SERIES
- 3.COMPUTER GRAPHICS : DONALD HEAON & M. PAULIVE BAKER (PHI)

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BBCS-206

Object oriented technology and C++ Programming

UNIT-I

Marks -10

Evolution of oop, oop paradigm, advantages of oop, comparison between functional programming and oop approach, characteristics of object oriented language objects, classes, inheritance, reusability user defined data types, polymorphism, overloading .

UNIT-II

Marks -10

Introduction to C++ identifier and keywords, constants C++ operators, data type conversion , variable declaration statements, expressions, Input and Output, conditional expression loop statement, Breaking control statements Breaking control statements.

UNIT-III

Marks -10

Function: Defining a function types of functions storage class specifies, recursion arrays, structures, pointers and structures, Unions.

UNIT-IV

Marks -10

Classes, member function, objects, arrays of class objects pointers and Classes, nested classes, constructor, destructors, overloading and overriding inline member functions , static class member, friend functions, dynamic memory allocation.

UNIT-V

Marks -10

Inheritance, Single inheritance, types of base classes types of derivation, multiple inheritance container- classes, member access Control, function, overloading operator overloading, polymorphism, virtual functions, pure virtual functions, Opening and classing of files stream state member functions.

Reference Books

HERBERT SCHILDT, "C++ THE COMPLETE REFERENCE " - TMH PUBLICATION ISBN 0-07-463880-7

E. BALGURUSWAMY, "C++ ", TMH PUBLICATION ISBN 0-07-462038-X M KUMAR "PROGRAMMING IN C++", TMH PUBLICATIONS

C++Programming-LAB:-

• Basic Syntax and Structure:

- Writing simple programs to demonstrate understanding of the basic syntax, including variable declaration, data types, and basic input/output operations.

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- **Control Structures:**

- Implementation of conditional statements (if, else if, else, switch) and loops (for, while, do-while).

- **Functions:**

- Defining and calling functions, understanding function parameters and return types, and using function overloading.

- **Arrays and Strings:**

- Declaring and manipulating arrays and strings, including operations like sorting, searching, and basic string handling functions.

- **Pointers and References:**

- Understanding pointers, pointer arithmetic, references, and dynamic memory allocation using new and delete.

- **Classes and Objects:**

- Basic concepts of Object-Oriented Programming (OOP), including class definitions, constructors, destructors, member functions, and access specifiers.

- **Inheritance and Polymorphism:**

- Implementing inheritance (single and multiple) and understanding polymorphism through virtual functions and abstract classes.

- **Operator Overloading:**

- Overloading operators to perform custom operations on user-defined types.

- **Templates:**

- Using function templates and class templates to write generic and reusable code.

- **File I/O:**

- Reading from and writing to files using file streams (ifstream, ofstream, fstream), including handling file errors.

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Class : B.A./B.Sc./B.Com./B.Sc.(Home Science)/BCA/B.A.(Mgt.) --- III Year
Subject : Foundation Course
Paper : I
Paper Name : (Hindi Language & Moral Values)
Compulsory/Optional: Compulsory
Max Marks : (Hindi Language = 25) +(Moral Values = 05)+ CCE 05 = 35

Particulars

न्दपज.ए	हिन्दी भाषा मेरे सहात्री (यात्रा वृत्तांत) – अमृतलाल बेगड। मध्यप्रदेश की लोक कलाएँ (संकलित) लोकोक्तियाँ एवं मुहावरे (संकलित)
न्दपज.ए	हिन्दी भाषा जुनसंचार माध्यम (प्रिन्ट, इलै, एवं सोशल मीडिया), टूटते हुए (एकांकी) – सुरेश शुक्ल चंद्र संक्षिप्तियाँ
न्दपज.ए	हिन्दी भाषा पत्रकारिता के विभिन्न आयाम (संकलित) मध्यप्रदेश का लोक साहित्य (संकलित) पत्र लेखन – आवेदन, प्रारूपण, आदेश परिपत्र ज्ञापन, अनुस्मारक (संकलित)
न्दपज.ए	हिन्दी भाषा राजभाषा, हिन्दी (संकलित) हिन्दी की संवैधानिक एवं व्यावहारिक स्थिति दूरभाष और मोबाइल (संकलित) हिन्दी की शब्द सम्पदा (संकलित) अनुवाद : अर्थ प्रकार एवं अभ्यास
न्दपज.ए	नैतिक मूल्य विश्व के प्रमुख धर्म एवं महत्वपूर्ण विशेषताएँ (हिन्दू धर्म, जैन धर्म, बौद्ध धर्म, सिक्ख धर्म, ईसाई धर्म, इस्लाम धर्म) सत्य के साथ मेरे प्रयोग (महात्मा गाँधी की आत्म कथा का संक्षिप्त संस्करण)

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Class : B.A./B.Sc./B.Com./B.Sc.(Home Science)/BCA/B.A.(Mgt.) --- III Year
Subject : Foundation Course
Paper : II
Paper Name : English Language
Compulsory/Optional: Compulsory
Max Marks : 30 + Internal Assessment (5) = 35

Particulars

Unit-I	Stopping by Woods on a snowy Evening: Robert Frost. Cherry Tree : Ruskin Bond. The Axe : R.K. Narayan. The Selfish Giant : Oscar Wilde On The Rule of the Road : A.G. Gardiner. The song of Kabir : Translated by Tagore
Unit-II	Basic Language Skills : Transformation of sentences, Direct-Indirect Speech, Active. Passive Voice, Confusing Words, Misused words, Similar words with different meaning.
Unit-III	Report Writing, Narration Skills, Narration of events and situations.
Unit-IV	Drafting of E-mails.
Unit-V	Drafting CV.

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Class : B.A./B.Sc./B.Com./B.Sc.(Home Science)/BCA/B.A.(Mgt.) --- III Year
Subject : Foundation Course
Paper : III
Paper Name : (Baics of Computer & Information technology)
Compulsory/Optional: Compulsory
Max Marks : 25 + Internal Assessment (5) = 30

Particulars

Unit-I	Introduction to Computer : Basic Organization of Computer system: Block diagram & Functions (Central Processing Unit, Input/ Output Unit, Storage Unit); Characteristics: Capabilities & Limitations. Types of Computing Devices: Desktop Laptop & Notebook smart-Phone, Tablet PC, Server, Workstation & their Characteristics. Primary Memory & Their Types: RAM, ROM, PROM, EPROM EEPROM, Cache Memory. Peripheral Devices : Input Devices : Keyboard Mouse, Trackball, Joystick, Digitizer or Graphic tablet, Scanners, Digital Camera, Web Camera, MICR, OCR, OMR, Bar-code Reader, Voice Recognition device Light pen & Touch Screen. Output Devices : Display Devices (CRT, TFT, LCD, LED, Multimedia Projectors): Video Standard : VGA, SVGA, XGA etc, Impact Printers (Daisy Wheel, Dot Matrix & Line Printer); Non impact printer (Inkjet, Laser, Thermal); Storage Devices : Magnetic Tape, Cartridge, Data Drives, Hard Disk Drives (Internal & External), Floppy Disks, CD, VCD, CD-RW, Zip Drive DVD, DVD-RW, USB Flash Drive, Blue Ray Disc & Memory cards.
Unit-II	Operating System (OS)

	Dos Basic: FAT, File & Directory Structure and naming rules, Booting process, DOS system files, internal & External Dos Commands. Windows Basics (only elementary ideas): Windows 7 & 8: Desktop, Control Panel: saving, remaining, moving copying and searching files & folders, restoring from recycle Bin. Creating shortcut, Establishing Network Connections.
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Unit-III	MS Word Text editing and formatting using Word file in various file formats: Previewing documents, Printing document to file / page: Protecting document Editing of selected text, Inserting Deleting and Moving text. Formatting documents: page Layout, Paragraph format, Aligning text and Paragraph, Borders and Shading, Headers & Footers.
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Unit-IV	MS Power Point & MS Excel : Creating presentation using slide master and template in various themes & variants Working with slide, move, copy, delete, duplicate, slide layouts, presentation view Format menu: Font, Paragraph, Bullets & numbering.
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	Printing presentation: Print slides, notes, handouts and outlines. Saving presentation in different file formats. Workbook & worksheet: Entering data into worksheet (General, Number, Currency, Date, Time, Text, Accounting etc.); Renaming, Copying, Inserting, deleting & protecting worksheet. Working with Row & Column (Inserting, deleting, Pasting, Resizing & Hiding), Cell & Cell formatting, and Concept of range.
Unit-V	Internet: World Wide Web Dial up connectivity, leased line, VSAT, Broad Band, WI-FI, URL, Domain name, Web Dial up Browser (Internet Explorer, Firebox, Google Chrome, opera, UC Browser etc.) Search Engine (Google, Bing, Ask etc); Website: Static & Dynamic; Difference between website & Portal. E-mail: Account opening. Sending & Receiving Mails, Managing Contacts & Folders.
	E-mail, Internet & Social Networking Ethics. Types of viruses & antivirus. Computer security Issues & its protection through firewall & antivirus. Making secured online transactions.

TextBoks :

1. PC Software for Windows by R.K. Taxali.
2. Fundamental of Computers by P.K. Sinha.
3. Computer Today by Suresh K. Basandra
4. Computer fundamental s and Architechture by B. Ram.
5. Internet Security by Kenneth Einar Himma, 2007.
6. Internet Security Secrets by John R. Vacca, 2007.

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Unit-V	Internet: World Wide Web Dial up connectivity, leased line, VSAT, Broad Band, WI-FI, URL, Domain name, Web Dial up Browser (Internet Explorer, Firebox, Google Chrome, opera, UC Browser etc.) Search Engine (Google, Bing, Ask etc); Website: Static & Dynamic; Difference between website & Portal. E-mail: Account opening. Sending & Receiving Mails, Managing Contacts & Folders.
	E-mail, Internet & Social Networking Ethics. Types of viruses & antivirus. Computer security Issues & its protection through firewall & antivirus. Making secured online transactions.

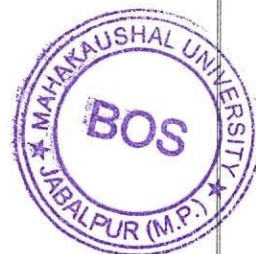
TextBoks :

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4. Computer fundamental s and Architechture by B.Ram.
5. Internet Security by Kenneth Einar Himma, 2007.
6. Internet Security Secrets by John R. Vacca, 2007.

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BBCS301-T

Digital Electronics and microprocessor

UNIT-I

Marks -10

Introduction to member systems, logic gates or , AND, NOT, X-OR, NAND, NOR gates, Truth tables, positive and negative logic, logic families and their characteristics RTL, DTL, TTL and CMOS, Universal building blocks NAND And NOR gates, Laws of Boolean algebra De Morgan's Theorem Boolean identities, simplification of Boolean identities, simplification of Boolean expressions, karnaugh maps, sum of product maps, sum of product (Sop) product of sums (PoS)

UNIT-II

Marks -10

Combinational and Sequential Circuits: multiplexer and De multiplexer, Decoder, Half adder, Full adder and Parallel adder circuits, Flip flaps, RS,D Jk and Jk Master, slave (working & Truth tables), Semiconductor memories, organization and working, synchronous and Synchronous binary counters, up/down counters, decade counters (7490), working truth tables and timing diagrams.

UNIT-III

Marks -10

Introduction t o microcomputer and microprocessor, Intel 8085 microprocessor, central processing unit CPU Arithmetic logical Unit ALU, Timing and control unit register organization, address, data and control bases pin configuration of 8085 and its description, Timing diagrams, instruction cycle, machine cycle fetch and execute cycles, Instructions set of 8085 instruction and data formals classification of instructions, addressing modes.

UNIT-IV

Marks -10

Assembly language programming examples of 8 & 16 bit addition, Subtraction, multiplication and a vision finding the largest and smallest in a data array Programming examples using stacks and subroutines.

UNIT-V

Marks -10

Interfacing, peripherals and applications: Programmable peripheral interface c8255, D/A Converters and their interfacing to the microprocessor, Motor control, seven segment LED.

Reference Books

- 1 MICROPRO CESS OR ARCHITECTURE, PROGRAMMING & APPLICATIONS WITH 8085. RAM GAONKAR, PENRAM PUBLIS HING LTD.
- 2 MICROPRO CESS ORS AND INTERFACING, BHALL TMH, 2ND EDITION.
- 3 IBM PC ASSEMBLY LANGUAGE PROGRAMMING, PETER ABLE, PHI

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Digital Electronics LAB:-

- **Logic Gates:**

- Understanding and implementing basic logic gates (AND, OR, NOT, NAND, NOR, XOR, XNOR) using both integrated circuits (ICs) and basic electronic components.

- **Boolean Algebra and Simplification:**

- Applying Boolean algebra rules to simplify logic expressions and using Karnaugh maps (K-maps) to minimize logic functions.

- **Combinational Circuits:**

- Designing and implementing combinational circuits such as adders (half adder, full adder), subtractors, multiplexers, demultiplexers, encoders, and decoders.

- **Sequential Circuits:**

- Understanding and implementing sequential circuits including flip-flops (SR, D, JK, T) and designing counters (binary, BCD, up/down counters) and shift registers.

- **Digital Counters:**

- Designing and constructing various types of counters, including asynchronous (ripple) and synchronous counters, and analyzing their operation.

- **Timers and Clock Generators:**

- Using timers (e.g., 555 timer IC) and clock generator circuits to produce accurate time delays and clock pulses for synchronous circuits.

- **Analog to Digital and Digital to Analog Converters (ADC/DAC):**

- Understanding the principles of ADC and DAC, implementing simple converter circuits, and analyzing their performance.

- **Memory Elements:**

- Exploring various types of memory elements, such as RAM and ROM, and understanding their application in digital circuits.

- **Microcontroller Programming and Interfacing:**

- Programming microcontrollers (e.g., Arduino, PIC) for digital control and interfacing with devices like sensors and actuators.

- **Design and Simulation Software:**

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- Using digital design and simulation software (e.g., Multisim, Logisim, VHDL) to design, test, and analyze digital circuits before physical implementation.

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BBCS302-T Operating Systems

UNIT-I

Marks -10

Introduction to operating systems, goal of os, batch processing, multiprocessing, time sharing, distributed real time systems.

UNIT-II

Marks -10

System calls, system programs, structure of os, layer design- of Dos, Unix, virtual machine of, kernel based os, micro-kernel based os, architecture of window zoo process concept, interacting process, threads process in Unix, process and threads in windows zoo.

UNIT-III

Marks -10

Process scheduling, fundamental of scheduling, scheduling- criteria, long medium short term scheduling, scheduling algorithm up to multi- processor scheduling, algorithm evaluation.

UNIT-IV

Marks -10

Structure of concurrent system, critical section, critical region, inter process communication, monitor and semaphores, implementation and user.

UNIT-V

Marks -10

Unix History, Programmer interface, file manipulation process control, kernel, signals, file system, block in odes, Stream editor, Character transliteration "ed" Vi editor and their commands.

Shell script, variables, file Name expansion, shell commands looping and making decisions, array, sub program C- interface with Unix, simple shell programs,

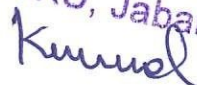
Reference Books

1. OPERATING SYSTEM CONCEPTS By SILBERSCHATZ & GALVIN, ADDISON WESLEY PUBLICATION 6th Edition.
2. OPERATING SYSTEM CONCEPTS & DESIGN By MILAN MILEN KOVIC, TMH PUBLICATION

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BBCS303-T E-Commerce

UNIT-I

Marks -10

Electronic Commerce Framework, Electronic and media- convergence, Traditional VS Electronic

Business applications The Anatomy of E- commerce Applications

UNIT-II

Marks -10

Overview of mobile computing Technology, mobile data internet and mobile computing Applications.

UNIT-III

Marks -10

Networks security and firewalls, client server Network Security Threads, Fire walls and Network

Security, Data Message security , Encrypted Documents and electronic- Mail.

UNIT-IV

Marks -10

Architectural Framework for electronic commerce, worldwide web as Architecture, consumer oriented E-commerce, electronic data interchange (EDI), EDI Applications – in Business, EDI Security document management and digital libraries,

UNIT-V

Marks -10

Consumer- oriented applications, mercantile process models, mercantile models from the consumer's perspective mercantile models from the merchant's perspective.

TEXT & REFERENCE BOOKS:

- LEVEL MODULE - M 1.2 - INTERNET & WEB PAGE DESIGNING BY V.K.JAIN - BPB PUBLICATIONS.
- E-COMMERCE AN INDIAN PERSPECTIVE (SECOND EDITION) - BY P. T. JOSEPH, S.J. PRENTICE-HALL OF INDIA
- INTERNET FOR EVERYONE - ALEXIS LEON AND MATHEWS LEON, VIKAS PUBLISHING HOUSE PVT. LTD., NEW DELHI
- INTERNET FOR DUMMIES - PUSTAK MAHAL, NEW DELHI
- A BEGINNERS GUIDE TO HTML AVAILABLE AT:
[HTTP://WWW.NCSA.UIUC.EDU/GENERAL/INTERNET/WWW/HTMLPRIMERALL.HTML](http://www.ncsa.uiuc.edu/general/internet/www/htmlprimerall.html)
- INTRODUCTION TO JAVASCRIPT AVAILABLE AT: [WWW.MCU](http://www.mcu.edu.in)

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BBCS-304-T

Visual Basic programming

UNIT-I

Marks -10

Introduction Need of Visual languages, Integrated development environment (IDE) , Advantages of visual Basic, characteristics and features of visual Basic- IDE, Projects, User interface, objects oriented, visual development and event driven programming, forms/Graphic controls, data processing, sharing with windows and internet applications.

UNIT-II

Marks -10

Visual basic programming and tools: An Introduction of visual Basic programming, simple program construction, statements, Input/ outputs, comments, Editor, Subroutines, control flow- statements, objects and variants, procedure, & functions,

UNIT-III

Marks -10

Designing user interface- elements of user interface, understanding forms, menus. and toolbars, designing menus and toolbars, Building Dynamic forms, Drag & Drop Operations, Working with menus, customizing the toolbars.

UNIT-IV

Marks -10

Controls- Textbox, combo box, Scrollbar, and slider controls operations, generating timed events, drawing with visual basic using graphics, controls, co-ordinate systems and graphic methods, manipulating colors and pixels with visual Basic.

UNIT-V

Marks -10

Database programming with Visual Basic, Data access methods, creating, reading and writing text files. Data Controls. Creating Queries.

Reference Books

1. VB.NET PROGRAMMING BLACK BOOK BY STEVEN HOLZNER –DREAMTECH PUBLICATIONS
 2. MASTERING VB.NET BY EVANGELOS PE TROUTSOS - BPB PUBLICATIONS
 3. INTRODUCTION TO .NET FRAME WORK- WORX PUBLICATION
- MSDN.MICROSOFT.COM/NET/
WWW.GOTDOTNET.COM

VisualBasic-LAB:-

- Introduction to Visual Basic IDE:

- Navigating the Integrated Development Environment (IDE), understanding the toolbar window, and solution explorer.

- Basic Controls and Form Design:

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- Designing user interfaces using basic controls such as labels, text boxes, buttons, checkboxes, radio buttons, and list boxes.
- **Event Handling:**
 - Writing event handlers for various controls to respond to user actions like clicks, key presses, and mouse movements.
- **Variables and Data Types:**
 - Declaring and using variables, understanding data types, and performing type conversions.
- **Control Structures:**
 - Implementing decision-making constructs (If...Then, Select Case) and loops (For...Next, While...End While, Do...Loop).
- **Procedures and Functions:**
 - Creating and using subroutines (Sub) and functions (Function) to modularize code and perform repetitive tasks.
- **Arrays and Collections:**
 - Working with arrays and collections to store and manipulate groups of related data.
- **File I/O Operations:**
 - Reading from and writing to files, handling file exceptions, and using file dialogs.
- **Database Connectivity:**
 - Connecting to databases using ADO.NET, performing CRUD operations (Create, Read, Update, Delete), and displaying data in controls like DataGridView.
- **Object-Oriented Programming:**
 - Understanding classes and objects, creating and using custom classes, and implementing basic concepts of inheritance and polymorphism.

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BBCS-305-T Multimedia Basic

UNIT-I

Marks -10

Introduction to multimedia technology- computer, communication and entertainment:
Frame work for multimedia systems: Advantages of MM, System Components and the
user interface, mm platform, Hardware, Software, commercial tools and standard

UNIT-II

Marks -10

Images and applications image capture compression , standards, Audio
compression And

Decompression, Audio Synthesis , M,D, Speech recognition & Synthesis, Video Capturing,
compression

& De compression, digital video and image compression JPEG Image compression
standards : MPEG

motion video compression ; DVI Technology; time – based media representation and
delivery

UNIT-III

Marks -10

LAN, WAN, Storage of MM, M/M Presentation and authoring Digital Representation
of sound and transmission, brief survey of speech recognition and generation.
Developing Applications, Methodology, design, multimedia, object sharing multimedia
and the law.

UNIT-IV

Marks -10

Application of M/M Intelligent M/M System, Desktop- Virtual reality (VR) Operating
System, Virtual Environment displays and orientation tracking ; Visually coupled system
requirements ; intelligent VR Software Systems, Training and education, kiosks,
Multimedia in office and home.

UNIT-V

Marks -10

Build HTML documents from scratch. View HTML document using a variety of web
browsers, organize information using Lists, use HTML frames and tables for page-
Layout, Connect to a variety of resources by using hypertext links, create style sheets
to format the look and feel of the pages, understand key image theory concepts, create
new images from Scans or from scratch, optimize image sizes, create animated gibes and
transparent images, be able- to create graphical elements, for use on web pages, buttons,
banners, navigation bars, background files, embed images and other multimedia

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Reference Books

- MULTIMEDIA: MAKING IT WORK (4TH EDITION) BY THYVAUGHAN, TATA MCGRAW HILLS.
- MULTIMEDIA IN ACTION JAMES E SHUMAN VIKAS PUBLISHING HOUSE.
- MULTIMEDIA BASICS VOLUME / TECHNOLOGY, ANDREAS HOI
- ZINGER, FIREWALL MEDIA (LAXMI PUBLICATIONS PVT. LID) NEW DELHI.

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BBCS306-T

Relational Database Management Systems.

UNIT-I

Marks -10

Distributed database design, architecture of distributed processing system, of data communication concept, data placement, placement of DDBMS and other components, concurrency , need of recovery, recovery techniques, Serializability. Blocking; dead- locks, introduction to query Optimization.

UNIT-II

Marks -10

Query Optimization and processing, algorithm for external sorting. Select and join, object and set operations. Heuristics in query optimization temporal database concept, multimedia database, data mining, association rule, classification applications , data-warehousing, need, architecture, characteristics, data layer.

UNIT-III

Marks -10

Introduction to SQL, Security and integrity of databases, security specifications in SQL.

UNIT-IV

Marks -10

Oracle RDBMS: Overview of three tier client server- technology, modules of oracle & SQL -Plus Data types, constraints, operators, DDL DML, DCL- Create, Modify, Insert , Delete & update searching, matching and oracle functions) Data Types , Matching and oracle functions) Data types, PL/SQL Functions Error handling in PL/ SQL, Package functions package procedures, oracle transactions, SQL stored procedures.

UNIT-V

Marks -10

Data base triggers: Introduction, Use & type of database triggers, triggers VS. Declarative- integrity constraints, BE FORE VS. AFTER Trigger Combinations, Creating a Trigger, Dropping a Trigger.

Reference Books

AN INTRODUCTION TO DATABASE SYSTEM (3RD ED.) BY C.J. DATE DATABASE SYSTEM CONCEPTS BY HENRY F. KORTH

DATABASE MANAGEMENT SYSTEMS BY LEON & LEON, VIKAS PUBLICATIONS. AN INTRODUCTION TO DATABASE SYSTEM BY BIPIN C. DESAI

FUNDAMENTALS OF DATABASE SYSTEM (2ND ED.) BY ELEMESRI AND S. NAVATHE ORACLE A BEGINNERS GUIDE BY MICHAEL ABBEY & MICHAEL J. COREY TMH PUBLICATIONS

DBMS-LAB:-

• Database Creation and Management:

- Creating databases, tables, and managing database objects like indexes, views, and sequences.

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- **Data Definition Language (DDL):**

- Understanding and using DDL commands such as CREATE, ALTER, and DROP to define and modify database objects.

- **Data Manipulation Language (DML):**

- Writing SQL queries to perform CRUD operations (Create, Read, Update, Delete) on database records using SELECT, INSERT, UPDATE, and DELETE statements.

- **Data Querying and Filtering:**

- Writing SQL queries with various clauses (e.g., WHERE, ORDER BY, GROUP BY, HAVING) to retrieve specific data from one or multiple tables.

- **Joins and Subqueries:**

- Understanding and using different types of SQL joins (INNER JOIN, LEFT JOIN, RIGHT JOIN, FULL JOIN) and subqueries to perform complex data retrieval.

- **Aggregate Functions:**

- Using SQL aggregate functions (e.g., SUM, AVG, COUNT, MIN, MAX) to perform calculations on grouped data.

- **Constraints and Integrity:**

- Implementing constraints (e.g., NOT NULL, UNIQUE, PRIMARY KEY, FOREIGN KEY) to maintain data integrity and enforce data validation rules.

- **Transactions and Concurrency Control:**

- Understanding the concepts of transactions, ACID properties, and implementing concurrency control mechanisms to ensure data consistency in multi-user environments.

- **Database Design and Normalization:**

- Designing and normalizing database schemas to eliminate redundancy and improve data integrity, understanding different normal forms (1NF, 2NF, 3NF).

- **Stored Procedures and Triggers:**

- Writing and executing stored procedures and triggers to automate tasks and enforce business rules within the database.

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