

BCA-Part-I Semester Wise Scheme

Courses of Studied for BCA-I Year

Semester – I (Theory : 300, Practical : 100)

Course	Theory Max. Marks	Practical Max. Marks	Max. Marks	Min Marks
BCA -101 Introduction to Information Technology	50	-	50	17
BCA-102 Programming and Problem Solving in C	50	-	50	17
BCA -103 Mathematical Foundations of Computer Science	50	-	50	17
BCA-104 PC Packages	50	-	50	17
BCA -105 Accounting and Financial Management	50	-	50	17
BCA-106 Communication Skill – I	50	-	50	17
BCA -107 Practical – I (Based on BCA-102)	50	-	50	17
BCA-108 Practical – II (Based on BCA-104)	50	-	50	17

Semester II (Theory : 300, Practical : 100)

Course	Theory Max. Marks	Practical Max. Marks	Max. Marks	Min Marks
BCA -201 Operating Systems	50	-	50	17
BCA-202 Advanced Programming in C with UNIX/LINUX	50	-	50	17
BCA -203 Digital Electronics	50	-	50	17
BCA-204 Object Oriented Programming Methodology with C++	50	-	50	17
BCA -205 Data Base Management System	50	-	50	17
BCA-206 Principal of Management & Managerial Economics	50	-	50	17
BCA -207 Practical – I (Based on BCA-202)	50	-	50	17
BCA-208 Practical – II (Based on BCA-204)	50	-	50	17

BCA-101 Introduction to Information Technology

UNIT-I Basic concept of information Technology, Concepts of data and information, data processing, History of computers, organization of computers, input and output devices, storage devices and file organization.

UNIT-II

System software, application software, utility packages, compilers, interpreters, operating system, Elementary commands of Dos, Windows and Unix operating system (File handling, directory management and general purpose user interfacing command)

UNIT-III

Machine language, assembly language. High level languages, forth generation languages. General concept of OOPS (Object oriented programming) and SQL (Structure Query Languages).

UNIT-IV

Communication system elements, Communication modes (Analog and digital, Synchronous and asynchronous, Simplex, half duplex and full duplex, circuit switching and packet, Switching) Communication Media: (Speed and capacity, twisted pair, coaxial fiber optics, wireless), Common network components, host and servers, work-stations, network topologies and network protocols (ISO/OSI Ref Model and TCP/IP) .

UNIT-V

Application of IT in business, industry, home, education and training, Entertainment, Science and engineering and medicine, multimedia data types (Graphics, images, audio, video). Virtual reality applications, internet, world wide web (WWW), Domain names, e-mail, teleconferencing, E-commerce, hypermedia, data warehousing.

Books

1. Rajaraman V. "Fundamentals of computers" (2nd edition). Prentice Hall of India, New Delhi
2. Sanders, D.H. "Computers Today", "MC Graw Hills, 1988.
3. S. Jaiswal, "Information Technology Today", Galgotia Pub, New Delhi, 1999.

Note: The question paper will have the usual note saving "Attempt five questions choosing one from each unit." Thus, The paper will clearly specify Unit and have a pattern of two questions per unit with an option to attempt any one of these two within each unit. The balance of the paper will be maintained by including appropriate (numerical / conceptual/analytical/theoretical) combination of subsections of each question.

Unit – I

Problem identification, analysis, design, coding, testing & debugging, implementation, modification & maintenance; algorithms & flowcharts; Characteristics of a good program – accuracy, simplicity, robustness, portability, minimum resource & time requirement, modularization; Rules/conventions of coding, documentation, naming variables; Top down design; Bottom-up design.

Unit II

History of C; Structure of a C program, Data types; Constant & Variable; Operators & expressions; Control Constructs – if-else, for, while, do-while; Case statement; Arrays; Formatted & unformatted I/O; Type modifiers & Storage classes; Ternary operator; Type conversion & type casting; Priority & associativity of operators.

Unit –III

Functions; Arguments; Return value; Parameter passing – call by value, call by reference; Return statement; Scope, visibility and life time rules for various types of variable, static variable; Calling a function; Recursion – basics, comparison with iteration, tail recursion, when to avoid recursion examples.

Unit IV

Special constructs – Break, continue, exit(), goto & labels; Pointers - & and * operators, pointer expression, pointer arithmetic, dynamic memory management functions like malloc(), calloc(), free(); String; Pointer to function, Function to parameter, Structure – basic, declaration, membership operator, pointer to structure, referential operator, self referential structures, structure within structure, array in structure, array of structures; Union – basic, declaration; Enumerated data type; Typedef; Command line arguments.

Unit V

File handling and related functions; printf & scanf family; C preprocessor – basics, # Include, # define, # undef, conditional compilation directive like #if, #else, #endif, #ifdef and #ifndef; Variable argument list functions.

Books:

1. Kerninghan & Richie: The C Programming language, PHI
2. Cooper Mullish: The Spirit of C, Jaico Publishing House, Delhi
3. Kanetkar Y: Let us C
4. Kanetkar Y: Pointers in C.

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BCA-103 Mathematical Foundation Of Computer Science

UNIT-I

Types of errors, Error approximation ,truncation error, rounding error. Solution of transcendental equation by: Bisection , false position, Newton-Raphson Methods.

UNIT-II

Introduction and Approximation: Polynomial interpolation, Newton and Languages interpolation. Approximation of function by Taylor series. Numerical integration: Simpson's one third rule, Gauss quadrature formula .

UNIT –III

SETS AND RELATION: Combinations of sets,finite and infinite sets,countable and uncountable infinite sets,Order sets. Properties of Binary Relations. Partial Ordering relations and Lattices.

UNIT-IV

FORMAL LANGUAGES AND FINITE AUTOMATA : Regular expressions, finite Automata from Regular Expression to finite Automata, Minimizing the number of States of DFA .Phrase structure Grammers, Types of Grammer and Languages.

UNIT-V

GRAPHS,TREES,AND CUT-SETS: Basic Terminology, Multygraphs and weighted graphs, Paths and Circuits, Shortest Paths, Eulerian Paths and circuits, Hamiltonian paths and circuits. Rooted trees, Path length in rooted trees, Binary search trees,Spaning trees, Minimum spanning trees.

Books:

1. Hogg,R.V.Craig,A.L.: Introduction to mathematical statistics,American Publishing co.pvt.ltd.
2. Seymour Lipschutz: Linear Albera.
3. Computer criented numerical analysis by S.S.Shastrri

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Unit-I

MS Windows: Introduction to M.S Windows; Features of windows; Various versions of Windows & its uses; Working with Windows; My computer & Recycle bin; Desktop, Icons and Windows Explorer; Screen description & working styles of Windows; Dialog Boxes & Toolbar; Working with files & Folders; Simple operations like copy, delete, moving of files and folders from one drive to another, Shortcuts & Autostart; Accessories and Windows Settings using Control Panel-setting common devices using control panel, modem printers, audio, network, fonts, creating users, internet settings, Start button & Program lists ;Installing and Uninstalling new Hardware & Software program on your computer.

Unit-II

Office Packages – Office activates and their software requirements, Word-processing, Spreadsheet, Presentation graphics, Database, introduction and comparison of various office suites like MS Office, Lotus Office, Star Office, Open Office etc.

MS Word Basics – Introduction to MS Office; Introduction to MS- Word; Features & area of use, Working with MS- word; Menus & Commands; Toolbars & Buttons; Shortcut Menus, Wizards & Templates, Creating a New Document; Different Page Views and Layouts; Applying various Text Enhancements; Working with – Styles Text Attributes; Paragraph and Page Formatting; Text Editing using various features; Bullets, Numbering Auto formatting, Printing & various print options.

Unit – III

Advanced Features of MS- word- Spell check, Thesaurus, Find & Replace; Headers & Footers: Inserting- Page Number, Pictures, Files, Autotexts, Symbols etc; working with columns, Tad & Indents; Creation and working with Tables including conversion to and from text; Margins and Space management in Documents; Adding references and Graphics; Mail Merge, Envelops & mailing Labels. Importing and Exporting to and from various formats.

Unit- IV

MS Excel: Introduction and area of use; working with MS Excel: concept of workbook and worksheet; Using Wizards; Various Data Types; Using different with Data, Cell and Texts; Inserting and Removing & Resizing of Columns & Rows; Working with Data & Ranges; Different views of Worksheet; Column Freezing, Labels, Hiding, Splitting etc.; Using different t features of Data and Text; Use of Formulas, Calculation & Functions; Cell formatting including Borders and Shading; Working with Different Chart Types; Printing of Workbook & Worksheets with Various options.

Unit- V

MS PowerPoint: Introduction and area of use; Working with MS PowerPoint; Creating a New Presentation; Working with Presentation; Using Wizards; Slides & ITS Different Views; Inserting, Deleting and Copying Of Slides; Working with Notes , Handouts; Columns and Lists; Adding Graphics, Sounds and Movies to a slide; Working with PowerPoint Objects; Designing and Presentation of a Slide Show; Printing Presentations; Notes , Handouts with print options.

Books:

1. Windows XP Complete Reference. BPB Publications
2. MS Office XP complete BPB Publication
3. MS Windows XP Home edition complete, BPB Publications

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appropriate (numerical / conceptual/analytical/theoretical) combination of subsections of each question.

BCA -105 – Accounting and Financial Management

Unit –I

The basic Financial Accounts, types of accounts, Rules of Entries of transactions, Journals. Cash Book – Types, Format of Cash Book, Balancing of Cash Book, Subsidiary books – Purchase, Sales. Purchase return and sales return. Ledger, posting of entries.

Unit II

Trial Balance, Rectification of errors, adjustment entries. Depreciation and Inflation.

Unit III

Principles of Cost Accounting, Valuation of Stocks, Allocation of Overheads, Methods of material issues.

Unit IV

Pay roll department, preparation of pay roll, Preparation of wage record, Methods of payments of wages, overview of computerized method for payroll preparation.

Unit V

Inventory account and store record, inventory or stock control and cost accounting. Department demand and supply method of stock control. Classification and condition of material Report on material handling. Overview of computerized accounting process – Introduction to accounting system software, their features and some basic operations.

Books :

1. Mazda, Engineering Management, Addisen Wesley
2. S P Gupta, Management Accounting

Vikram University, Ujjain – BCA Syllabus (w.e.f. – 2010-11 & onwards)

3. I.M.Pandey, Financial Management, Vikas Publication.

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