# First Year

<table>
<thead>
<tr>
<th>Paper No</th>
<th>Title</th>
<th>Periods Per Week (Theory/Practical)</th>
<th>Max. Marks</th>
<th>Continual Internal Assessment</th>
<th>Exam Duration Hours</th>
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<tr>
<td>BCA-101</td>
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# Second Year

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### Third Year

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In 3rd year the student has to develop one Software Project, which will be evaluated on the following basis:

i) Project Report 50 marks  
ii) Viva-Voce 100 marks  
iii) Seminar 50 marks

**Total 200 marks**

**Note:** In each theory paper, nine questions are to be set. Two questions are to set from each Unit and candidate is required to attempt at least one question from each unit. Question number nine will be compulsory, which will be of short answer type with 5-10 parts, out of the entire syllabus. In all, five questions are to be attempted.
UNIT-I

Set theory, quadratic equations, sequence & series, binomial theorems, exponential and logarithms series, determinants, matrices, vector algebra.

UNIT-II

Rectangular co-ordinates, length of a line segment, section ratio, area of a triangle, equations of a straight line circles, conic section, parabola, ellipse and hyperbola.

UNIT-III


UNIT-IV

Functions, limits and continuity, Derivative of functions, Maxima & Minima, Infinite integrals and definite integrals, Solution of ordinary differential equation of 1st order and 1st degree.

Text & Reference Books:


Note: In each theory paper, nine questions are to be set. Two questions are to set from each Unit and candidate is required to attempt at least one question from each unit. Question number nine will be compulsory, which will be of short answer type with 5-10 parts, out of the entire syllabus. In all, five questions are to be attempted.
UNIT-I

Introduction- Characteristics of Computers, Evolution of computers, Capabilities and limitations of computers, Generations of computers, Types of computers(micro, mini, main frame, supercomputers), Block diagram of computer, Basic components of a computer system- Input unit, output unit, Arithmetic logic Unit, Control unit, central processing unit, Instruction set, registers, processor speed, type of processors, Memory- main memory organization, main memory capacity, RAM, ROM, EPROM, PROM, cache memory, PCs specifications.

UNIT-II


UNIT-III

Computer Software- Software and its Need, Types of software-System software, Application software, System software-operating system, utility program, programming languages, assemblers, compilers and interpreter, introduction to operation system for PCs-DOS, windows, linux, file allocation table (FAT & FAT32), files & directory structure and its naming rules, programming languages-machine, assembly, high level, 4GL, their merits and demerits, application software and its types – word-processing, spreadsheet, presentation graphics, Data Base Management Software, Characteristics, Uses and examples and area of application of each of them, Virus working, feature, types of viruses, virus detection prevention and cure.

UNIT-IV

Data communication and computer network- Basic elements of a communication system, data transmission modes, data transmission speed, data transmission media-twisted pair coaxial, fiber optic,
microwave system, communication satellites, Types of network connections—dialup, leased lines, ISDN, DSL, broad band, Types of Internet, VPN, Topologies of LAN—ring, bus, star, mesh and tree topologies.

**Text & Reference books:**


**Note**: In each theory paper, nine questions are to be set. Two questions are to set from each Unit and candidate is required to attempt at least one question from each unit. Question number nine will be compulsory, which will be of short answer type with 5-10 parts, out of the entire syllabus. In all, five questions are to be attempted.
UNIT-I

Fundamentals of semiconductor physics- Energy bands in solids- pn-junction diode depletion region, forward and reverse bias, diode as switch; Bipolar Junction Transistor, transistor configurations, bipolar junction transistor (CE configuration) as switch, Saturated and non-saturated logic, Integrated Circuits, characteristics of digital logic families-TTL, ECL, CMOS.

UNIT-II

Logic gates, AND, OR, NOT Gates and their Truth Tables, NOR, NAND & XOR gates, Boolean algebra, Basic Boolean Law’s, Demorgan’s theorem, Boolean function and their truth tables, MAP simplification, Minimization techniques, K-Map, Sum of Product & Product of Sum, Venn diagram.

UNIT-III


UNIT-IV

A/D and D/A converters: D/A conversions – Weighted-Register D/A converter, R-2R ladder D/A converter, A/D conversions-Counter type method using D/A, dual slope integrator method, successive approximation method, simultaneous method.

Text & Reference Books:


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to Programming in C
Lectures 4 per week

UNIT-I

Introductory Concepts- Introduction to computers, Computer characteristics, modes of operation, Types of programming languages, Introduction to C, some simple C programs, Desirable program characteristics.

C Fundamentals- C character Set, Identifiers and keywords, data types, constants, variables and arrays, Declarations, expressions, statements, Symbolic constants.

UNIT-II

Operators and expressions- Arithmetic operators, unary operator, Relational and logical operators, assignment operators, conditional operators, Library Functions.

Data Input and Output- Preliminaries, singe character input, singe character output, Entering input data, writing output data, the gets and puts function.

Preparing and Running a Complete C Program- Planning a program, Writing a C program, entering the program into the compiler, compiling and executing the program, error diagnosis, debugging techniques.

UNIT-III


Arrays: Defining an array, processing an array, passing arrays to functions, Multidimensional arrays, Arrays and strings.

Functions: A brief overview, Defining a function, accessing a function, function prototypes, passing arguments to a function, recursion.

UNIT-IV

Pointers- Fundamentals, Pointer declarations, Passing pointers to the functions, pointers and one dimensional array, dynamic memory allocation, Operations on pointers, arrays of pointers.

Data files- Opening and closing a data file, creating a data file, processing a data file, unformatted data files.

Text & Reference Books:

Note: In each theory paper, nine questions are to be set. Two questions are to set from each Unit and candidate is required to attempt at least one question from each unit. Question number nine will be compulsory, which will be of short answer type with 5-10 parts, out of the entire syllabus. In all, five questions are to be attempted.
DOS commands (internal (DIR, DATE, TIME, CLS, CD, RD, MD, PATH, TYPE, DEL, ECHO, COPY, REN, PROMPT, VOL, VER), external (ATTRIB, CHKDSK, DISKCOPY, DISKCOMP, XCOPY, TREE, DELTREE, DOSKEY, FORMAT, FIND, SORT, FDISK, MORE, SYS)), Concept of files & directories, Wild card characters, Redirection operators.
Windows XP, Definition, Benefits, Features & uses of Windows XP, Control panel, Accessories, Task bar, My computer uses, Recycle bin.

UNIT II


UNIT III

Spreadsheets, Definition, Benefits, Features & Uses of MS Excel 2003, Menus, Toolbars, Worksheets, Formatting Worksheets and Restricting Data, Calculating with Formulas and Functions, Ranges, Auto fill, Data (sort, filter, validation, subtotal), Viewing and Manipulating Data with charts and PivotTables, Print, Goal seek, Scenario, Macros, Creating Excel Databases.

UNIT IV

Presentations, Definition, Benefits, Features & Uses of PowerPoint, Menus, Toolbars, Creating and Editing Slides, Adding graphics, Multimedia, and Special Effects to Slides, Insert (picture, slide, text), Master slide, Views, Animation, Action buttons, Macros.

Text & Reference Books:

In each theory paper, Nine questions are to be set. Two questions are to be set from each Unit and candidate is required to attempt at least one question from each unit. Question number Nine will be compulsory, which will be, of short answer type with 5-10 parts, out of the entire syllabus. In all, five questions are to be attempted.
UNIT –I

Grammar and Reading Skills- Skills of effective reading, reader related material, memory and retention, Parts of speech, writing correctly transformation of sentences, incorrect to correct English, tenses and replacing single word for group of words.

UNIT –II

Skills in Writing- letters, official/business correspondence. CV’s, Tech. Reports/types, Precis, comprehension, Paragraph writing (200 word) on current topics, writing notices, agenda, circulars.

UNIT –III

Secretarial Skills- Effective communication, listening and feedback skills, telephone handling, Attending meeting, preparing of agenda, writing of minutes, summaries. Handling problem situations. Control of voice and proper use of phonetics.

UNIT –IV

Presentation and Discussion Skills- Types of communication. Barriers to Communication. Effective use of kinesics, Planning interviews and making presentations. Taking initiatives- especially in group discussions, overcoming nervousness, making audience analyses and establishing leadership.

Text & Reference Books:

4. Shiv K. Khera, “You can Win”.

Note: In each theory paper, nine questions are to be set. Two questions are to set from each Unit and candidate is required to attempt at least one question from each unit. Question number nine will be compulsory, which will be of short answer type with 5-10 parts, out of the entire syllabus. In all, five questions are to be attempted.

UNIT-II


UNIT-III


UNIT-IV


Text & Reference Books:

Note: In each theory paper, nine questions are to be set. Two questions are to set from each Unit and candidate is required to attempt at least one question from each unit. Question number nine will be compulsory, which will be of short answer type with 5-10 parts, out of the entire syllabus. In all, five questions are to be attempted.
UNIT-I

Rolle’s Theorem, Lagrange’s Mean Value Theorem, Cauchy’s Mean Value Theorem; their geometrical significance and applications. Successive differentiation and Leibnitz Theorem. Taylor’s Theorem.

UNIT-II

Infinite limits and indeterminate forms. Hyperbolic and inverse hyperbolic functions; their differentiation and integration. Partial differentiation of functions of several variables; their limit, continuity and differentiability. Homogenous functions and Euler Theorem.

UNIT-III

Reduction formulae for integrals involving
(i) $x^n e^x$  (ii) $x^n (\log x)^m$  (iii) $x^n \cos x$ and $x^n \sin x$  (iv) $\cos^n x \sin^m x$

UNIT-IV

Scalar and Vector functions; limit, continuity and differentiability of a vector function. Directional derivative, gradient of a scalar field, divergence and curl of a vector field. Line, surface and volume integrals, Theorem of Gauss, Stoke’s and Green’s (proofs not needed) and their applications.

Text & Reference Books:


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Data representation, number systems, decimal to binary, octal and hexadecimal conversion and vice versa, binary coded decimal numbers, hamming code for error detection, alphanumeric codes, arithmetic operations, binary addition and subtraction, addition/subtraction of numbers in 1’s and 2’s complement notation for binary numbers and 9’s and 10’s complement notation for decimal numbers, binary multiplication and division, BCD arithmetic, floating point addition and subtraction.

**Unit 2**

Register Transfer Language- Register transfer, Bus and Memory transfer (three-stage bus buffers, memory transfer), arithmetic micro-operations (Binary Adder, Binary-adder-Subtractor, binary incremener, arithmetic circuit), Logic micro-operation (list op logic micro-operations, hardware implementation), shift micro-operations (hardware implementation), arithmetic logic shift unit, instruction codes (stored program organization, indirect address), computer registers (common bus register), computer instructions (instruction set completeness), timing and control, instruction cycle (fetch and decode, types of instruction, register-reference instructions), Micro programmed control, control memory, addressing sequencing (conditional branching, mapping of instructions, subroutine)

**Unit 3**

Central Processing Unit- Introduction, general register organization (control word, examples of micro-operations), stack organization (register stack, memory stack, reverse polish notation, evaluation of arithmetic expressions), instruction formats (three-address instructions, two address instructions, one-address instructions), addressing modes, data transfer and manipulation (data transfer instructions, data manipulation instructions, arithmetic instructions, logical and bit manipulation instructions, shift instructions), Program control (status bit conditions, conditional branch instructions, program interrupt, types of interrupt).

**Unit 4**

Input Output Organization- Introduction to peripheral devices, input output interface (I/O bus and interface modules, I/O versus memory bus, isolated versus memory-mapped I/O), asynchronous data transfer (strobe control, handshaking), modes of transfer (programmed I/O, interrupt- initiated I/O, software considerations), priority interrupt (daisy-chaining priority, parallel priority, priority encoder,
interrupt cycle), direct memory access (DMA controller, DMA transfer), memory (RAM and ROM chips, memory address map, memory connection to CPU), Auxiliary memory (Magnetic disk, magnetic tape).

**Text and reference books:**

Object oriented programming- Need for OOP, object oriented approach, characteristics of OOP language- objects, classes, Inheritance, Reusability, Polymorphism, overloading advantage of OOP, relationship between C and C++.
Programming Basic- Basic program construction, output using cout, preprocessor directive, comments, integer variables, character variables, input with cin, Type bool, setw Manipulator, type float, type conversion, arithmetic operators, relational operators, logical operators.

UNIT-II

Loops and decision control statements- loop- for, while, do, decision- if, if- else, switch, conditional operator, other control statements- break, continue, goto.
Structures and functions- structures, Accessing structure members, structure within a structure, Enumerated Data type, simple functions, passing arguments to functions, Returning values from functions, reference arguments, overloaded functions, storage classes, scope resolution operator.

UNIT-III

Objects and classes- A simple class, classes and objects, specifying a class, using a class, C++ objects as physical objects, C++ objects as data types, Constructors, objects as function arguments, returning objects from functions.
Arrays- Array fundamental-defining array, array elements, Accessing array elements, Initializing arrays, multidimensional arrays, passing arrays to functions, array of objects, strings-string variables, Avoiding Buffer overflow, string constants, array of strings string as class members, Standard C++ string Class.

UNIT-IV

Operator overloading- Overloading unary operators- the operator keyword, operator arguments, operator return values nameless temporary objects, limitation of increment operators, overloading Binary operators, data conversion, Pitfalls of operator overloading and conversion.
Inheritance- Derived class and base class, specifying the derived class, accessing base class, members, derived class constructors, overriding member functions, class hierarchies, public and private
Inheritance, multiple inheritance, Ambiguity in Inheritance- Classes Within Classes.

**Text & Reference Books:**


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UNIT -I

Overview of System Analysis and Design, Business System concepts, System development life cycle, Project Selection, Feasibility Analysis, Design, Limitation, testing and evaluation. Initial Investigation- Sources of Requests, User / Analyst, interaction,

UNIT –II

Qualities of a System Analyst, Feasibility studies- Technical and economic feasibilities, cost and benefit analysis.

UNIT –III

System requirement specification and analysis- Fact finding techniques, Data Flow Diagrams, Data Dictionaries, process organization and interaction, Decision Analysis, Decision Trees and Tables. Top down and bottom up variance, Audit trails.

UNIT –IV

Detail Design- Modularization, module specification, file design, system development involving databases. System control and quality assurance- Design objectives reliability and maintenance, software design and documentation tools, unit and integration testing, testing practice and plans, system control.

Text & Reference Books:


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**UNIT –II**


**UNIT –III**

Memory Management- Partition, Paging, Segmentation, Types Of Memory Management Scheme, Bare Machine, Resident Monitor, Swapping, Multiple Partition, Virtual Memory, Demand Paging.

**UNIT –IV**


**Text & Reference Books:**


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Internet- Evolution of Internet, Internet Application, Network requirements, Bandwidth, Internet features (Electronic Mail, Newsgroups, FTP Archive, Real Time Activity, Video, Audio, Search Engine), World Wide Web, WWW Browsers, WWW Servers, Dial-Up SLIP, PPP Access, Dedicated line, ISDN.

UNIT-II


UNIT-III

HTML - Text formatting, Data, Tables, Table layout, Images, HTML Interactivity, URLs, HTTP, NNTP, Hyperlinks, Menus & Image Maps, HTML Form, Embedded objects in HTML, Web Typography, Approaching Web Typography, Graphics and Type, Families and Faces, Type forms, Color and Type, Adding Graphics, Adding Graphics with the Image Element, Using images as links, Creating Image Maps, Working with Image Files, Layout Technology, Standard HTML Formatting, Tables, Frames,

UNIT-IV

Formatting your site with Cascading Style Sheets, Seeing Style Sheets in Action, Understanding CSSI's Advantages and Limitations, Making HTML and CSSI's, Making HTML and CSSI work together, Learning How CSSI Works, Using CSSI Properties. XML, XML Language, SMGL, Linking in XML.

Text & Reference Books:

1. Internet Get Started: BPB Publications.
4. Tauber, “Mastering Front Page 2000” BPB.
6. HTML Complete: BPB Publisher.
Note: In each theory paper, nine questions are to be set. Two questions are to be set from each Unit and candidate is required to attempt at least one question from each unit. Question number nine will be compulsory, which will be of short answer type with 5-10 parts, out of the entire syllabus. In all, five questions are to be attempted.

UNIT-II


UNIT-III

Cost Accounting - Nature and scope of Cost Accounting, Cost Concept and classification, Cost Sheet, Budget and Budgetary Control, Marginal Costing (BEP and Cost Volume Profit analysis).

UNIT-IV

Management Accounting - Meaning, importance and Scope of Management Accounting, Financial Statement Analysis, Brief introduction to the tools of Analysis (Ratio, Fund Flow and Cash Flow Analysis).

Text & Reference Books:


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UNIT-I

Order, degree, solution and formation of a differential equation. Standard techniques of solving linear differential equations with constant coefficients, Cauchy’s and Legendres, Linear differential equations with variables coefficients.

UNIT-II

Complex numbers and their representation in a plane. Argand diagram, algebra of complex numbers, modulus and arguments of a complex number, square root of a complex number and cube roots of unity, triangle inequality, De-Moivre’s theorem, roots of complex numbers.

UNIT-III

Sequences- Convergence or divergence of a sequence. Infinite series- its convergence and sum, series with positive terms and standard tests of convergence- p-series tests, comparison tests, D’ Alemberts ratio test, Raabes test, Cauchy’s root test, Integral test (Without proofs); Alternating series , Leibnitz test, Absolute convergence.

UNIT-IV


Text & Reference Books:


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UNIT -I

A tour of the Visual Studio IDE- Start Visual Studio, Open or close an existing project, possible menu variations, use the Form Designer, use the Code Editor, use the Solution Explorer, work with Visual Studio’s windows
Test a project- Build a project, run a project, upgrade projects and change .NET Framework versions, upgrade projects created in earlier versions of Visual Basic .NET, change the .NET Framework version used by a project, design a Windows Forms application, set options and create a new project, set the Visual Studio options, change the import and export settings, create a new project
Design a form- Add controls to a form, Set properties, common properties for forms and controls, add navigation features, property settings, use Document Outline view, name and save the files of a project, code and test a Windows Forms application
An introduction to coding- Introduction to object-oriented programming, refer to properties, methods, and events, application response to events, Add code to a form, create an event handler for the default event of a form or control, IntelliSense helps you enter the code for a form, code with a readable style, code comments, detect and correct syntax errors.
use the toolbar buttons, collapse or expand code, print the source code, code snippets, use the Smart Compile Auto Correction feature, use the My feature, get help information, run, test, and debug a project

UNIT -II

Work with numeric and string data- Work with the built-in value types- Declare and initialize variables, declare and initialize constants, code arithmetic expressions, code assignment statements, work with the order of precedence, use casting, change the type semantics, use the Math class, work with strings, declare and initialize a string, join and append strings.
Convert data types- .NET structures and classes that define data types, use Visual Basic functions to convert data types, use methods to convert data types, use three of the formatting functions, use methods to convert numbers to formatted strings, three skills for working with data (work with scope, declare and use enumerations, work with nullable types). The basic application,
Code Boolean expressions, Use the relational operators, Code conditional statements, Code Select Case statements, Code loops, Code For loops, code Do loops, use Exit and Continue statements, Debugging techniques for programs with loops.

Future Value application- The design and property settings for the form, code for the form

UNIT -III

Code procedures and event handlers- Code and call procedures- Code Sub procedures, call Sub procedures, When and how to pass arguments by reference and by value, code and call Function procedures, work with events, start an event handler for any event, handle multiple events with one event handler, use the Code Editor to start an event handler, add and remove event wiring.

The Function procedure, event handlers
Handle exceptions and validate data- An introduction to data validation and exception handling, use the IsNumeric function for data validation, display a dialog box for error messages, exception handling works, Use structured exception handling, catch an exception, use the properties and methods of an exception, catch specific types of exceptions, throw an exception, application with exception handling.

Validate data- Validate a single entry, use generic procedures to validate an entry, validate multiple entries, application with data validation, dialog boxes, code, two ways to validate data (use the Validating event, use the masked text box).

UNIT -IV

Work with arrays and collections- Work with one-dimensional arrays, create an array, assign values to the elements of an array, use For loops to work with arrays, use For Each loops to work with arrays, work with rectangular arrays, create a rectangular array, assign values to a rectangular array, work with rectangular arrays, work with jagged arrays, create a jagged array, assign values to a jagged array, work with jagged arrays, use the Array class, refer to and copy arrays, code procedures that work with arrays, work with collections, commonly used collection classes, typed vs. untyped collections.

Work with a list, work with a sorted list, work with queues and stacks, work with an array list.

Work with dates and strings- Work with dates and times, create a DateTime value, get the current date and time, format DateTime values, get information about dates and times, perform operations on dates and times, use Visual Basic properties and functions to work with dates and times, work with strings, properties and methods of the String class, Code examples that work with strings, procedures for validating user entries, use the StringBuilder class, use the Visual
with strings, Format numbers, dates, and
format dates and times
of controls, work with combo boxes and list boxes, work with check
boxes and radio buttons, work with group boxes, use Tab Order view
to set the tab order, get the information you need for using a control
Work with multi-form projects- Add a form to a project, rename a
form, change the startup form for a project, display a form as a dialog
box, pass data between a form and a custom dialog box
Use the MessageBox class- Display a dialog box and get the user
response, use the FormClosing event
Debug an application- Basic debugging techniques, set the debugging
options, work in break mode, use the Edit and Continue feature, use
breakpoints, control the execution of an application, use the
debugging windows, use the Locals window to monitor variables, use
the Autos window to monitor variables, use Watch windows to monitor
expressions, use the Immediate window to execute commands, use
the Call Stack window to monitor called procedures, use the Output
or Immediate window to get build or debugging information, use
Visualizer dialog boxes to view strings.

Text & Reference Books:

1. Anne Boehm, Mike Murach and Associates “Murach’s Visual Basic
   2008”, Publisher of Professional Programming.
2. Steven Holzner Visual  Basic 6 programming, Black Book.

Note: In each theory paper, nine questions are to be set. Two
questions are to set from each Unit and candidate is required to
attempt at least one question from each unit. Question number
nine will be compulsory, which will be of short answer type with 5-
10 parts, out of the entire syllabus. In all, five questions are to be
attempted.
UNIT-I

Introduction To Database Concepts- Data Modeling for a Database, Fields, Records and Files, Abstraction and Data Integration, Database Architecture, Users, Structure of DBMS, Advantages and Disadvantages of DBMS.
Data Models- Entity, Attribute, Relationship, Data Model Classifications, File based, Traditional, Semantic, Entity-Relationship Model.

UNIT-II

File Organization- Operation on files, Sequential Files, Index-Sequential Files, Types of Indexes, Implicit, limit, multilevel, Direct Files, Indexing using B-Tree Structure.
Relational Model- Relational Database- Relational Algebra, Relational Calculus.

UNIT-III

Relational Database Design- Relational Scheme and Relational Design, Functional Dependency, Normal forms (First, Second, Third, Boyce Code), Decomposition and dependency preservation, Multi-valued dependency.

UNIT-IV

Ms Access- Tables (Creation/Design structure, Data Entry), Primary keys, Foreign Keys Master-Detail Table, Query (Select, Make-Table, Update, Append, Delete) Form (Modal, Modeless), Relationships Report (Creation of a simple report from a table and from a query).

Text & Reference Books:
2. Bipin C. Desai, “An Introduction to Database Management System”.

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Introduction to Communication Network- Computer Networks, (Need, uses, and Advantages of Computer Network), Network Models (Peer-to-Peer-Network, Server-based Network, Client-Server Network), Network components, Network Topology (Star, Ring, Bus, Mesh, Tree, Hybrid, Advantage and Disadvantage of each types.), Types of Networks (LAN, MAN, WAN), Internet (Brief History, Internet Today, Protocol and Standard ), Data Communication, Component, Data Representation, Analog Signals, Digital Signals, Transmission Modes (Asynchronous and Synchronous) Transmission Networks ( Serial and Parallel), Communication modes (Simplex, Half Duplex, Full duplex) Signal Transmission (Base band and Broadband), Digital Signal encoding.

Unit-II

Error Detection and Correction Types of errors (Single–bit-error, Burst-Error), Error Detection (Redundancy, Parity check, CRC, Checksum), Error correction (FEC, Hamming code, Burst error corrections ) Data Communication Channel and Media, Conductive Media (Twisted-pair cable, Coaxial cable), Fiber optics (Characteristic of light, Types of Fiber optics), Wireless Transmission, (Microwaves, Infrared, Radio waves), Transmission Impairment (Attenuation, Bandwidth Latency, Throughput and Channel capacity.) Multiplexer and Switching Concepts Types of multiplexer (TDM, FDM, SPM, FPM, CDM, WDM), Switching concept (Circuit Switching Message Switching, Packet Switching and Cell switching)

Unit-III

OSI-Reference Model, OSI Model, OSI Physical Layer Concepts, DLL, Network Layer, TL, SL, PL and AL Concepts. Internet model / TCP/IP Model and Protocols, Modem, DSL, Cable Modem, ISDN, Real world network (Ethernet, Ethernet operation, frame format, Ethernet characteristic, cabling and components) Token Ring and Token Bus networking Technology, Fast Ethernet networking technology (fast Ethernet Media types, Repeaters, Networking diameter ), Gigabit Ethernet Technology (Standards, characteristics, Protocol Architecture), Network Connectivity, Repeater, Hub-(Active, Passive and Intelligent), Bridge-(Local, Remote and wireless), Routers (Static and Dynamic), switches and types of switches, Brouter and Gateways, Backbone Network and Virtual LAN.

Unit-IV

TCP/IP Protocol Suite, Internet Architecture Board, TCP/IP Protocol (TCP,UDP,IP,ARD), concept of Physical Addressing, and logical

**Text & Reference Books:**


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Meaning and Role of Management Information System- Introduction, Definition, System’s Approach.

UNIT –II


UNIT –II

Strategic & Project Planning for Management Information System- Business Planning, Management Information System Responses, Management Information System Planning- General & Details.

UNIT –IV

Pitfalls in Management Information Systems.

Text & Reference Books:

2. Surendra Basandra, “Computers Today”.

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UNIT-I

Representation of numbers, Decimal to Binary conversion, Floating point representation of numbers, Integer and realfloating point arithmetic, different types of errors, error in the approximation of a function, error in series approximation, Solution of algebraic and transcendental equation using Bisection method, Regula-Falsi method, Newton-Raphson method.

UNIT-II


UNIT-III


UNIT-IV


Text & Reference Books:

1. B.S. Grewal, “Numerical methods in Engg & Science”.

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UNIT-I

Introduction to Personnel Management - Nature, Scope, functions and significance, Personnel Policies, classification and organization of Personnel Department, Various structures and types of Personnel Department.

UNIT-II


UNIT-III

Human resources Development- Training and Development and Promotion and incentives, retirement benefits, Performance Appraisal and Job Evaluation, Employee remuneration and various incentive plans.

UNIT-IV

Industrial Relations- Concept and Significance, Trade Unions, Dispute settlement, Ethical issues in Personnel Management, Employee welfare, Meaning and Types of welfare activities, Employee safety and management of employee’s Health.

Text & Reference Books:

Note: In each theory paper, nine questions are to be set. Two questions are to set from each Unit and candidate is required to attempt at least one question from each unit. Question number nine will be compulsory, which will be of short answer type with 5-10 parts, out of the entire syllabus. In all, five questions are to be attempted.