BSC (IT) 1st

General English

Introduction: Theory of Communication, Types and modes of Communication

Language of Communication: Verbal and Non-verbal (Spoken and Written) Personal, Social and Business Barriers and Strategies Intra-personal, Inter-personal and Group communication

Speaking Skills: Monologue Dialogue Group Discussion Effective Communication/ Mis-Communication Interview Public Speech

Reading and Understanding Close Reading Comprehension Summary Paraphrasing Analysis and Interpretation Translation(from Indian language to English and vice-versa) Literary/Knowledge Texts

Writing Skills Documenting Report Writing Making notes Letter writing

Fundamental of Computers and Information Technology

Computer system concept, computer system characteristics, capabilities and limitations, types of computers – analog, digital, hybrid, general, special purpose, micro, mini, mainframe, super. generations of computers, personal computer (PC) - IBM PC, characteristics, PC/PCXT/PCAT - configurations, Pentium and newer PC specifications and main characteristics. Types of PC- desktop, laptop, notebook, palmtop, workstations etc, their characteristics, add on cards on PC : sound card, video card, network card etc.

Basic components of a Computer System - Control Unit, ALU, Input / Output functions and Characteristics, Memory – RAM, ROM, EPROM, PROM and other types of memory.

Input devices-Keyboard, Mouse, Trackball, Joystick, Digitizing Tablet, Scanners, Digital Camera, MICR, OCR, OMR, Bar-code Reader, Voice Recognition, Light Pen, Touch Screen – Working Principles, Areas of use & characteristics.

Output Devices – Monitors, Characteristics and Types of Monitor – Digital, Analog, Size, Resolution, Refresh Rate, Interlaced / Non Interlaced, Dot Pitch, Video Standard – VGA, SVGA, XGA etc.

Printers - Daisy Wheel, Dot Matrix, Inkjet, Laser, Line Printer, Plotter

Storage Devices –Fundamentals, Primary Vs Secondary, Data Storage and Retrieval Methods - Sequential, Direct and Index Sequential, Various storage devices - Magnetic Tape, Magnetic Disks, Cartridge Tape, Hard Disk Drives, Floppy Disks(Winchester Disk), Optical Disks, CD, VCD, CD-R, CD-RW, Zip Drive.

Need, Types of Software - System Software, Application Software, System Software - Operating System, Utility Program, Programming Languages, Assemblers, Compilers and Interpreter, Operating Systems - Functions, Types - Batch, Single, Multiprogramming, Multiprocessing, Programming Languages- Machine, Assembly, High Level, 4GLs, Their merits and demerits, Application Software – Word Processing, Spreadsheet, Presentation Graphics, Data Base Management Software, Characteristics, Uses and examples and area of applications of each of them.

Virus, Types of Viruses, Virus detection and prevention Viruses on Network. Introduction to Multimedia.

Programming in 'C'

Programming in C: History, Introduction to C Programming Languages, Structure of C programs, compilation and execution of C programms. Debugging Techniques, Data Types and Sizes, Declaration of variables, Modifiers, Identifiers and keywords, Symbolic constants, Storage classes (automatic, external, register and static), Enumerations, command line parameters, Macros, The C Preprocessor

Operators: Unary operators, Arithmetic & logical operators, Bit wise operators, Assignment operators and expressions, Conditional expressions, precedence and order of evaluation. Control Statements: if-else, switch, break, continue, the comma operator, go to statement.

Loops: for, while, do-while.

Functions: built-in and user-defined, function declaration, definition and function call, parameter passing: call by value, call by reference, recursive functions, multifile programs.

Arrays: Linear arrays, multidimensional arrays, Passing arrays to functions, Arrays and strings.

Structure and Union: Definition and differences, self-referential structure. And address of (&) operator, pointer to pointer, Dynamic Momory Allocation, calloc and malloc functions, array of pointers, function of pointers, structures and pointers.

Mathematical Foundation

Relation: Type and compositions of relations, Pictorial representation of relations, Equivalence relations, Partial ordering relation.

Function: Types, Composition of function, Recursively defined function.

Mathematical Induction: Piano's axioms, Mathematical Induction, Discrete Numeric Functions and Generating functions, Simple Recurrence relation with constant coefficients, Linear recurrence relation without constant coefficients, Asymptotic Behaviour of functions

Algebric Structures: Properties, Semi group, monoid, Group, Abelian group, properties of group, Subgroup, Cyclic group, Cosets, Permutation groups, Homomorphism, Isomorphism and Automorphism of groups.

Prepositional Logic: Preposition, First order logic, Basic logical operations, Tautologies, Contradictions, Algebra of Proposition, Logical implication, Logical equivalence, Normal forms, Inference Theory, Predicates and quantifiers, Posets, Hasse Diagram.

Lattices: Introduction, Ordered set, Hasse diagram of partially ordered set, Consistent enumeration, Isomorhic ordered set, Well ordered set, Lattices, Properties of lattices, Bounded lattices, Distributive lattices, and Complemented lattices.

Classification & Presentation of Data including diagrammatic presentation. Measures of central tendency – Mean, Mode, Median, Geometric & Harmonic. Measures of dispersion - Range, Quartile Deviation, Average & Standard deviation.
Type of sampling : Probability Vs. Non Probability, Sampling, Random, Non Random, Sampling, Size of sample. Probability theory – Baye’s Probability.

Simple Bivariate, Correlation & regression. Only concept of partial & multivariate correlation & regression. Index numbers – Aggregative & average of price relative methods.