COMPUTER SCIENCE

Chapter	Focus Area
1. The Discipline of Computing	Evolution of Computing machines (Abacus, Difference engine, Analytical engine), Generations of computers
2. Data Representation and Boolean Algebra	Number systems, Number conversions – Decimal to non decimal and reverse, Shortcut methods (avoid fractional conversion) Representation of integers (Sign & Magnitude, 1's and 2's compliments) and characters (ASCII & Unicode), Boolean operators (AND, OR, NOT) and logic gates, Simple circuit designing.
3. Components of the Computer System	Processor, Ports, Memory (RAM only with measuring units), e-Waste and disposal methods, System software (OS, Language processors – compiler and interpreter), Free and open source software.
4. Principles of Programming and Problem Solving	Phases in programming (Listing only), Debugging (Types of errors), Flowchart symbols, Development of algorithms and flowcharts to solve simple problems only (except looping).
5. Introduction to C++ Programming	Tokens and classification with examples
6. Data types and Operators	Fundamental data types, Variables, Operators and classifications, Type conversion, Various types of statements, Structure of C++ program.
7. Control Statements	Decision making statements (if, if – else, if – else if, switch), Iteration statements (while, for, do – while) – syntax and working, (Nesting not required), Jump statements (break, continue). (No programming)
8. Arrays	Declaration, Initialisation, Accessing elements, Operations (listing only with concept), Traversal operation with simple program.
9. String Handling and I/O Functions	Array declaration for string and initialisation, Input/Output operations, Use of get(), getline(), put(), write() functions. (No programming)
10. Functions	Modular programming and merits, Predefined functions (string, mathematical, character), User-defined functions (Syntax, Concept of arguments and return value). (No programming)
11. Computer Networks	Advantages of network, Key terms (Bandwidth, noise, node), Communication devices (switch, router, gateway, bridge, modem), Network topologies, Identification of computers over network (MAC, IP)
12. Internet and Mobile Computing	Services on Internet (Working procedure is not required), Cyber security (Computer virus, Trojan horse, hacking, phishing).