

## Learning Outcomes

### 1. Fundamentals of Computer

- 1.1 Explains data and information with suitable examples and distinguishes them.
- 1.2 Identifies various stages in data processing and explains the activities of each stage.
- 1.3 Explains the functional units of a computer with the help of a block diagram.
- 1.4 Explains why the computer is the best electronic data processing machine and lists its characteristics.
- 1.5 Infer the concept of data representation inside computers.
- 1.6 Explains the formation of numbers in decimal, binary, octal, hexadecimal number systems.
- 1.7 Converts a number from one system to another.
- 1.8 Recognizes various coding system to represent numbers.
- 1.9 Explains different coding systems for character representation in a computer.
- 1.10 Lists various file formats of audio, image and video data in computers.

### 2. Components of the Computer System

- 2.1 Identifies microprocessor and list registers.
- 2.2 Distinguishes various types of memory and lists their importance.
- 2.3 Distinguishes different types of input/output devices based on their uses and features.
- 2.4 Recognises the importance of e-Waste disposal and the learner's role in its disposal.
- 2.5 Explains the concept of green computing
- 2.6 Distinguishes between system software and application software
- 2.7 Recognises the need and functions of an operating system.
- 2.8 Classifies various language processors and recognises their need.
- 2.9 Lists the uses of different types of utility software.

- 2.10 Distinguishes and lists the use of word processor, electronic spread sheets and presentation software.
  - 2.11 Explains the importance of open source concepts
  - 2.12 Distinguishes the difference between freeware, shareware and proprietary software.
  - 2.13 Lists the advantages of freeware and shareware.
  - 2.14 Lists and illustrates various human ware or live ware.
- 3. Principles of Programming and Problem Solving**
- 3.1 Explains the basic principle of problem solving by computer.
  - 3.2 Distinguishes the two styles of problem solving approaches by citing examples.
  - 3.3 Lists different stages in programming and explains the activities in each stage.
  - 3.4 Develops algorithms for solving problems.
  - 3.5 Constructs flowcharts to express algorithms.
  - 3.6 Evaluates the best algorithm for solving the same problem.
- 4. Getting Started with C++**
- 4.1 Lists the C++ character set.
  - 4.2 Categorises various tokens and explains the purpose of each category in programs.
  - 4.3 Identifies valid identifiers and explains the reason for the invalid ones.
  - 4.4 Classifies various literals based on the characteristics.
  - 4.5 Identifies the main components of C++ IDE and uses it for program development.
- 5. Data Types and Operators**
- 5.1 Lists the basic data types of C++ with their features.
  - 5.2 Uses variables appropriately to refer data.
  - 5.3 Identifies the operators available in C++ to perform operations by the computer and classifies them based on different criteria.
  - 5.4 Creates and evaluates expressions with suitable C++ operators and classifies them based on the operators used.

5.5 Constructs C++ statements to give instructions to the computer for problem solving.

## **6. Introduction to Programming**

6.1 Identifies the structure of a simple C++ program

6.2 Follows the guidelines while writing stylistic program

6.3 Lists and chooses appropriate data type modifiers

6.4 Experiments with various operators

6.5 Applies various I/O operators to solve problems.

6.6 Writes simple programs using C++ for problem solving

## **7. Control Statements**

7.1 Explains the need of decision making statements in problem solving.

7.2 Uses if and if...else statements with correct syntax for decision making in programs.

7.3 Selects nested if statement and else if ladder suitably for multiple branching in programs.

7.4 Distinguishes between switch and else if ladder and uses the appropriate one for multiple branching.

7.5 Explains the need of iteration statements in problem solving and identifies the components of a loop.

7.6 Lists the iteration statements of C++ with their syntax and explains the mode of execution.

7.7 Uses appropriate looping statement of C++ in programs.

7.8 Distinguishes between entry controlled loops and exit controlled loop.

## **8. Computer Networks**

8.1 Recognises the computer network and its uses.

8.2 Identifies the essential components of communication system.

8.3 Recognises the various communication media.

8.4 Recognises the various data communication devices.

8.5 Identifies and explains the working of data terminal equipments.

8.6 Identifies the importance of each network topologies.

8.7 Lists the different types of network and identifies their scope.

- 8.8 Distinguishes the logical classification.
- 8.9 Recognises the need for protocol and explains its uses and functioning.
- 8.10 List the ways of identifying computers in a network.
- 8.11 Recognises the structure and working of URL.

#### **9. Internet**

- 9.1 Recognises the people behind the evolution of Internet.
- 9.2 Identifies the hardware and software requirements for Internet connection.
- 9.3 Uses the services available on the Internet.
- 9.4 Identifies the role of WWW as a service on the Internet.
- 9.5 Explains the use and working of search engines.
- 9.6 Explains the structure and working of e-mail.
- 9.7 Classifies the different types of social media.
- 9.8 Judges the risks while interacting in social media.
- 9.9 Recognises the threats to network security.
- 9.10 Recognises the measures for preventing network attacks.
- 9.11 Lists the guidelines for using Internet.

#### **10. IT Applications**

- 10.1 Identifies various fields where IT is used extensively.
- 10.2 Lists out types of interaction in e-Governance.
- 10.3 Explains the advantage and challenges in using e-Governance.
- 10.4 Identifies various fields in which e-Governance is used.
- 10.5 Explains the concept of e-Business and list various advantages and challenges facing the e-Business field.
- 10.6 Describes e-Learning and lists out various e-Learning tools.
- 10.7 Describes the advantage and challenges in implementing e-Learning.
- 10.8 Writes about the use of ICT in health care.
- 10.9 Lists out various ICT enabled devices used in health care.
- 10.10 Distinguishes between various other ICT enabled services.