

6. What are Programming Languages? Explain difference between machine language, assembly language, and high-level languages. Explain the role of compiler, interpreter, and assembler in program execution.
7. What is a Computer Network? Explain its types (LAN, MAN, WAN) and various network topologies with neat diagrams. Discuss the importance of data communication in networking.
8. Discuss the importance of Office Automation and explain in detail the features and applications of MS Word, MS Excel, MS Access, and MS PowerPoint in performing various office tasks.
9. Explain the different Number systems used in Computers – Binary, Octal, Decimal, and Hexadecimal. Convert the following and perform operations :
 - (a) Convert $(11100111101011)_2$ to Octal, Decimal and Hexadecimal.
 - (b) Convert $(1756243)_8$ to Binary, Decimal and Hexadecimal.
 - (c) Perform :
 - (i) $(10110)_2 + (1101)_2$
 - (ii) $(11101)_2 - (10111)_2$

-----X-----

Roll No. :

BCA-1001T

BCA (FYUP) (Semester-I) (NEP) Examination, 2025-26

COMPUTER FUNDAMENTAL AND PROBLEM-SOLVING TECHNIQUES

Time : 2 Hours]

[Maximum Marks : 75

Note : 1. Attempt questions from all sections as directed.

2. The candidates are required to answer only in serial order. If there are many parts of a question, answer them in continuation.

3. "B" copy will not be provided.

Section-A

(Short Answer Type Questions)

Note : There are Nine questions in this section. Attempt all questions. Each question carries 5 marks. $[9 \times 5 = 45]$

1. (a) Define a Computer and list any three important characteristics of it.

- (b) What are the main units of a Computer? Briefly describe Input, Output, and CPU.
- (c) What is Cache Memory? Explain its role in improving processing speed.
- (d) Explain Compiler, Interpreter, and Assembler with suitable examples.
- (e) List any four types of operating systems with examples.
- (f) Differentiate between LAN, MAN, and WAN with examples.
- (g) What is a Program? Mention any three steps involved in program development.
- (h) Explain the uses of MS Word, MS Excel, and MS PowerPoint in office work.
- (i) Convert the binary number $(11011011110111)_2$ into decimal and hexadecimal forms.

Section-B

(Long Answer Type Questions)

Note : There are **four** questions in this section. Attempt **any one** question. Each question carries **15** marks.

[1×15=15]

- 2. Explain the organization of a computer system with the help of a neat block diagram. Describe the functions of each component and the classification of computers.
- 3. Explain the different types of computer memory. Discuss primary, secondary, cache, and virtual memory in detail.
- 4. What is an Operating System? Explain its functions and types. Differentiate between command-based and GUI-based operating systems with suitable examples.
- 5. What are Problem-solving techniques in Computers? Explain the role of algorithms and flowcharts in program design, mentioning their characteristics, advantages, and disadvantages.

Section-C

(Long Answer Type Questions)

Note : There are **four** questions in this section. Attempt **any one** question. Each question carries **15** marks.

[1×15=15]