Roll No. | | | | | | | | | | | | |  Total No. of Pages : 02

Total No. of Questions : 09

**B.Tech.(AI&ML/AI&DS/DS/CE/CSE/IOT/EE/ECE/FT/IT/ME/Robotics & Artificial Intelligence/Internet of Things and Cyber Security including Block Chain Technology/) (Sem.–1,2)**

# PROGRAMMING FOR PROBLEM SOLVING

**Subject Code : BTPS-101-18**

**M.Code : 75346**

**Date of Examination : 21-01-2025**

**Time : 3 Hrs.** **Max. Marks : 60**

**INSTRUCTIONS TO CANDIDATES :**

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION - B & C. have FOUR questions each.**
3. **Attempt any FIVE questions from SECTION B & C carrying EIGHT marks each.**
4. **Select atleast TWO questions from SECTION - B & C.**

## SECTION-A

**1. Write briefly :**

a) What are the main components of a computer system?

b) Define syntax and logical errors with examples.

c) What is operator precedence in arithmetic expressions?

d) What is an array, and why is it used in programming?

e) Define linear search in an array.

f) What are built-in functions and why are they used?

g) What is recursion?

h) What is the structure in programming?

i) What is a pointer in programming?

j) What is file handling in programming?

## SECTION-B

2. Explain the process of converting an algorithm to a program, covering source code, variables, and memory locations.

3. Discuss the concept of loops and explain the differences between for, while, and do-while loops.

4. Discuss character arrays and how they differ from string data types in handling text?

5. Explain parameter passing in functions with examples of call by value and call by reference.

## SECTION-C

6. Draw a flowchart to find the maximum of three numbers.

7. Create a program that checks if a number is prime using conditional statements and loops.

8. Explain the process of linear and binary search algorithms with examples.

9. Explain the concept of merge sort and quick sort using recursion, with a step-by-step example.



**NOTE : Disclosure of identity by writing mobile number or making passing request on any page of Answer sheet will lead to UMC case against the Student.**