

Roll No.

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**B.Tech. (AI&ML / Artificial Intelligence (AI) and Data Science /  
Automation & Robotics / Automobile Engineering / CE / (AI&ML) / (CSE)  
(Data Science) / (CSE) (IOT) / Data Science / EEE / EE / ECE / FT / IT /  
ME / Robotics & Artificial Intelligence / CSE (Internet of Things and  
Cyber Security including Block Chain Technology) /  
PIT B.Tech Computer Engg.) (Sem-1, 2)**

**PROGRAMMING FOR PROBLEM SOLVING**

Subject Code : BTPS-101-18

M.Code : 75346

Date of Examination : 09-06-2023

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**

**I. Answer briefly :**

- a) What are different types of memories?
- b) What is a flowchart and how it is used in programming?
- c) What is a variable?
- d) What is for loop, and how it is different from a while loop?
- e) What is a 2-D array? Give an example.
- f) What is the complexity of bubble sort and why?
- g) What is user-defined function?
- h) Using recursion, define Fibonacci series.
- i) What is Structure?
- j) What is a pointer and why it is used?

## SECTION-B

2. What is the difference between call by value and call by reference? Explain with an example.
3. What is recursion, and how it is different from other functions? Give an example.
4. What is the difference between String and Arrays? Also, explain how you will decide when to use which data type?
5. Explain how we can use if-else statements and how they differ from switch statements.

## SECTION-C

6. Explain any two sorting algorithms and how they differ from searching algorithms.
7. Write a program for Quick sort. Also, explain how recursion is useful in this scenario.
8. Write a program to find the roots of an equation entered by the user.
9. Write a program using loops to find the sum of numbers from 1 to 10.

**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.**