

PRINCIPLES OF PROGRAMMING
LANGUAGE (THROUGH 'C')

Time Allowed : Three Hours
Maximum Marks - 100

- PART I: (Very short answer) consists of 10 questions of 2 marks each. Maximum limit for each question is up to 40 words.
- PART II: (Short answer) consists of 5 questions of 4 marks each. Maximum limit for each question is up to 80 words.
- PART III: (Long answer) consists of 5 questions of 12 marks each with internal choice.

PART - I

1. Attempt all questions. Each question carries 2 marks. [10 x 2 = 20]
- What is Pseudo Code?
 - Explain Programming Domains.
 - What is operator precedence?
 - What are the different methods to declare a constant in 'c'? Give example.
 - What is the difference between a do-while loop and a while loop?
 - What is the difference between a structure and a Union?
 - What is a NULL pointer? Give example.
 - What is enumerated data type? Give an example.
 - What is the difference between actual and formal parameters?
 - How do we calculate the size of a union in C?

PART - II

2. Attempt all questions. Each question carries 4 marks. [5 x 4 = 20]
- Draw a flowchart to calculate factorial of a given integer number.
 - Describe the skeleton of a 'C' program.
 - Write a program to read N values in an array and then find highest value.
 - Explain scope, visibility and lifetime of a variable in context to functions.

(e) Discuss the purpose of the following library functions :

- (i) fseek ()
- (ii) rewind ()
- (iii) feof ()
- (iv) ftell

PART - III

3. (a) Write pseudo code to find the sum of first 100 even numbers. [12]

OR

(b) Write an algorithm to check whether a number entered by user is prime or not. [12]

4. (a) Explain different data types available in 'C'. [12]

OR

(b) Write a program to input basic salary of an employee and calculate its gross salary according to the following :

- (i) Basic Salary ≤ 10000 : HRA=20%, DA=80%
- (ii) Basic Salary ≤ 20000 : HRA=25%, DA=90%
- (iii) Basic Salary > 20000 : HRA=30%, DA=95%

[12]

5. (a) Write a 'C' program to find the length of a string without using built-in functions. [12]

OR

(b) Discuss the following :

- (i) Declaration of one dimensional and two dimensional arrays.
- (ii) Initialization of one dimensional and two dimensional arrays.
- (iii) Accessing of elements from one dimensional and two dimensional arrays.
- (iv) Why array name is called a constant pointer? [3 x 4 = 12]

6. (a) What do you mean by Recursion? Write a recursive program in 'C' to print all the elements of an array. [2 + 10 = 12]

OR

(b) What are Pointers? How a function can be called by using a pointer to it? Explain with an example. [2 + 10 = 12]

7. (a) Write a program in C to copy content of a file to another file. [12]

OR

(b) Explain the following :

- (i) Declaring a structure
- (ii) Accessing members of a structure using pointer
- (iii) Self-referential structure
- (iv) Difference between a structure and a union [3 x 4 = 12]