



# CBCS SCHEME

USN

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18CPS13/23

First/Second Semester B.E. Degree Examination, Jan./Feb. 2023

## C Programming for Problem Solving

Time: 3 hrs.

Max. Marks: 100

*Note: Answer any FIVE full questions, choosing ONE full question from each module.*

### Module-1

- 1 a. Explain the generations of computer. (05 Marks)
- b. Classify and explain the different types of computers based in size and storage. (06 Marks)
- c. Explain the following :
  - i) Input devices (any two)
  - ii) Output devices (any two)
  - iii) Primary memory and Secondary memory. (09 Marks)

OR

- 2 a. Explain the basic structure of C program with an example. (05 Marks)
- b. Define data type. List the different types of data type. Explain the primitive (Basic) data types with size and ranges. (07 Marks)
- c. Classify operators. Explain the following operator with example:
  - i) Arithmetic operator
  - ii) Increment and Decrement operator
  - iii) Conditional operator. (08 Marks)

### Module-2

- 3 a. Explain about printf() and scanf() statements. (06 Marks)
- b. With simple program explain the following statement:
  - i) if else statement
  - ii) Nested if statement (08 Marks)
- c. Write a program that uses three coefficients (a, b & c) of a quadratic equation ( $ax^2 + bx + c = 0$ ) as input and find the root of quadratic equation and print them with appropriate message. (06 Marks)

OR

- 4 a. Explain switch statement and develop a program to solve simple computational problem using arithmetic expression and use of each operator leading to simulation of a commercial calculator (No built in math function). (08 Marks)
- b. Differentiate between while and do while loop. (05 Marks)
- c. Explain how to build a Pascal's triangle. Write a C program to print Pascal's triangle. (07 Marks)

### Module-3

- 5 a. Define Array. Explain how to declare, initialize and access the elements of one dimensional and two dimensional array with example. (08 Marks)
- b. Explain any five string manipulation library function with example. (06 Marks)
- c. Write a C program to read two matrices and find the multiplication of two matrices. (06 Marks)

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.  
2. Any revealing of identification, appeal to evaluator and /or equations written eg. 42+8 = 50, will be treated as malpractice.

OR

- 6 a. What is searching? Explain binary search technique and develop a program to implement Binary Search. (08 Marks)  
b. Explain about i) Linear Search ii) Selection sort. (06 Marks)  
c. Develop a program to sort the given set of numbers using Bubble Sort. (06 Marks)

**Module-4**

- 7 a. Define function. Explain function prototype and function declaration. (05 Marks)  
b. Explain the following :  
i) Actual parameters  
ii) Formal parameters  
iii) Global variable  
iv) Local variable (10 Marks)  
c. Explain pass by value and pass by reference with functions. (05 Marks)

OR

- 8 a. What is recursion? Write a C program to compute factorial of a given number 'n' using recursion. (06 Marks)  
b. Develop a program to print Fibonacci series using recursion. (05 Marks)  
c. List the types of user defined function explain them. (09 Marks)

**Module-5**

- 9 a. Define structure. Explain how to define, initialize and access the structure variable. (08 Marks)  
b. With example explain about Array of Structure and Array within structure. (06 Marks)  
c. Implement structures to read, write and compute average marks of N students using structure. (06 Marks)

OR

- 10 a. What is a pointer? Explain how to declare and initialize pointer variable. (05 Marks)  
b. List and explain any 5 important preprocessor directives supported by C. (10 Marks)  
c. List out the advantages and disadvantages of pointer. (05 Marks)

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