CBCS SCHEME

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18CPS13/23

First/Second Semester B.E. Degree Examination, July/August 2022
C Programming for Problem Solving

Time: 3 hrs. Max. Marks: 100

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

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.

Module-1

1 a. Write basic structure of 'C' program and explain its different sections. **(08 Marks)**

b. Describe the various types of computers. **(06 Marks)**

c. Define a token. Explain the different tokens available in C language. **(06 Marks)**

OR

2 a. Define a variable. Explain the rules for constructing variables in 'C' language? Give example for valid and invalid variables. **(08 Marks)**

b. What is a data type? Explain all the basic data types available in C language with example. **(08 Marks)**

c. List all the operators used in C language and evaluate following expressions:

(i) $x = a - b/3 - c * 2 - 1$ when $a = 9, b = 12, c = 3$

(ii) $10! = 10 \,||\, 5 < 4 \;\&\&\; 8$ **(04 Marks)**

Module-2

3 a. What are formatted and unformatted I/O functions? Explain them with syntax. **(08 Marks)**

b. Write a 'C' program to find area and circumference of a circle. **(06 Marks)**

c. What is looping? Explain for ( ) loop with syntax and example. **(06 Marks)**

OR

4 a. What is branching? List and explain all the branching statements with syntax. **(10 Marks)**

b. Write a C program to compute roots of a quadratic equations for non-zero coefficients of a, b and c. **(06 Marks)**

c. Bring out differences between while ( ) loop and do... while ( ) loop. **(04 Marks)**

Module-3

5 a. What is an array? Explain how 1D and 2D arrays are declared and initialized? **(08 Marks)**

b. Write a program to sort a given array of integers in ascending order using Bubble sort technique. **(08 Marks)**

c. Explain the declaration and initialization of string variables. **(04 Marks)**

OR

6 a. Define a string. List all the string manipulation functions. Explain any 4 with examples. **(10 Marks)**

b. Write C programs for,

(i) Linear search.

(ii) Binary search.

(Consider Integer data as input) **(10 Marks)**

Module-4

7 a. What are user defined functions? List and explain all the categories of user defined functions based on return type and parameters. **(10 Marks)**

b. Write a program to find factorial of a number using function. **(05 Marks)**

c. Write a program to find GCD and LCM of two integer numbers using functions. **(05 Marks)**

OR

8 a. Explain Pass by value and pass by reference with syntax and examples for each. **(10 Marks)**

b. What is recursion? What are the elements for recursion? Explain. **(05 Marks)**

c. Write a C recursive program to compute the Fibonacci series upto n terms. **(05 Marks)**

Module-5

9 a. Define a structure. Explain the syntax of structure declaration in C with example. **(06 Marks)**

b. List and explain types of structures with their syntax. **(06 Marks)**

c. Write a C program to implement structures to read, write and compute average marks and the students scoring above and below average marks for class of N students. **(08 Marks)**

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OR

10 a. What is a Pointer? Show how pointer variables are declared and initialized? List advantages and disadvantages of pointers. **(08 Marks)**

b. What is preprocessor directive? Explain any two preprocessor directives in C. **(06 Marks)**

c. Write a C program to swap contents of two variables using pointer technique. **(06 Marks)**

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