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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.

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) $x = a \frac{b}{3} c \cdot 2 1$ when a = 9, b = 12, c = 3
 - (ii) 10! = 10! 15 < 4 & 8 (04 Marks)

Module-2

- 3 a. What are formatted and unformatted LO 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)

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Mod	ule-4
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- 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.
 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)

OR

- 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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