USN ☐☐☐☐☐☐☐☐☐☐

18CPS13

First Semester B.E. Degree Examination, Dec.2018/Jan.2019
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 basic structure of a C program with example.   **(10 Marks)**
    b. Define a variable. Explain the rules for constructing variables in C language.   **(04 Marks)**
    c. Write a C program to compute simple interest. Draw the flowchart for the same.   **(06 Marks)**

OR

2   a. Define data type. Explain primitive data types supported by C language with example.   **(10 Marks)**

    b. List all the operators used in C language and evaluate following expression.

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

     ii) $10! = 10 \parallel 5 < 4 \ \&\& \ 8$.   **(04 Marks)**
    c. Describe the various type computers.   **(06 Marks)**

Module-2

3   a. Explain the formatted I/O functions of C language with syntax and example.   **(04 Marks)**
    b. Write a C program to implement commercial calculator using switch statement.   **(06 Marks)**
    c. Write the syntax of different branching statements and explain their working. **(10 Marks)**

OR

4   a. Differentiate between while loop and do-while loop. Explain with syntax and example.   **(08 Marks)**

    b. Write a program to find the sum of N natural numbers using for loop.   **(04 Marks)**
    c. Write a C program to plot Pascal's triangle.   **(08 Marks)**

Module-3

5   a. Define array. Write the syntax for and with declaring and initializing 1D and 2D array with suitable example.   **(10 Marks)**
    b. Write a C program to find the transpose of a give matrix.   **(10 Marks)**
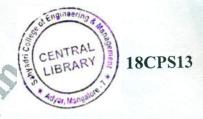
OR

6   a. Define string. List out all string manipulation function. Explain any two with examples.   **(10 Marks)**

    b. Write a C program for [consider integer data] :
       i) Bubble sort   ii) Linear search.   **(10 Marks)**

Module-4

7 a. What is a function? Explain the different type of functions based on parameter. **(10 Marks)**
   b. Write a program to find the factorial of a given number using functions. **(14 Marks)**
   c. Write a program to find GCD and LCM of two numbers using concept of functions.
      (06 Marks)

OR

8 a. Explain recursion and write a program to find nth term of Fibonacci series. **(10 Marks)**
   b. Give the scope and lifetime of following :
      i) External variable   ii) Static variable   iii) Automatic variable
      iv) Static variable   iv) Register variable. **(10 Marks)**

Module-5

9 a. What is a structure? Explain the syntax of structure declaration in C with example. **(04 Marks)**
   b. Write note on :   i) Arrays within structures   ii) arrays of structures. **(04 Marks)**
   c. Implement structures to read, write and compute average marks and the students scoring
      above and below average marks for class of N students. **(12 Marks)**

OR

10 a. What is a pointer? Show how pointer variable is declared and initialized. **(05 Marks)**
   b. Explain any two preprocessor directives in C. **(05 Marks)**
   c. Write a C program to find sum and mean of all elements is an array using pointer. **(10 Marks)**

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