CBCS SCHEME

USN ☐☐☐☐☐☐☐☐☐☐   **18CPS13/23**

First/Second Semester B.E. Degree Examination, Dec.2019/Jan.2020
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. How would you explain the components of a computer with the block diagram? **(08 Marks)**
   b. Describe the types of computers. **(06 Marks)**
   c. Convert the following mathematical expression into C equivalent statements.

   i) $m = x^4 + \sqrt{x + \dfrac{y}{k} - 4x + 6}$

   ii) $x = \dfrac{-b + \sqrt{b^2 - 4ac}}{2a}$

   iii) $Area = \pi r^2 + 2\pi rh$ **(06 Marks)**

OR

2. a. How can you write the basic structure of a C program? Explain with examples. **(08 Marks)**
   b. Define a token. Explain the different tokens available in C language. **(08 Marks)**
   c. How would you explain logical operator in a C language. **(04 Marks)**

Module-2

3. a. With examples how would describe the formatted input and formatted output statements in C language. **(08 Marks)**
   b. How would you explain if – else statement in C language? Give the relevant example. **(06 Marks)**
   c. Write a program in C to display the grade based on the marks as follows :

Marks	Grades
0 to 39	F
40 to 49	E
50 to 59	D
60 to 69	C
70 to 79	B
80 to 89	A
90 to 100	O

   (06 Marks)

OR

4. a. How would you explain switch statement with an example? **(08 Marks)**
   b. How the while loop differs from do-while loop? **(06 Marks)**
   c. Write a program to check whether a given integer is palindrome or not? **(06 Marks)**

Module-3

5. a. Define an array. How would you explain declaration and initialization of one dimensional array? **(06 Marks)**
   b. Write a program in C to implement binary searching technique. **(06 Marks)**
   c. How would you explain with examples, the string manipulation functions? **(08 Marks)**

OR

6 a. Write a program to read N integers and to arrange them in ascending order using bubble sort technique. **(06 Marks)**
   b. How would you explain the declaration and initialization of string variables? **(06 Marks)**
   c. Write a program to multiply 2 matrices, by ensuring their multiplication compatibility. **(08 Marks)**

Module-4

7 a. How would you illustrate the elements of user defined functions with examples? **(10 Marks)**
   b. Write a program in C to find the factorial of a given integer using functions. **(05 Marks)**
   c. Explain how call by value differs from call by reference while invoking a function. **(05 Marks)**

OR

8 a. How would you explain the categories of user defined functions? **(10 Marks)**
   b. Write a program in C to compute the Fibonacci series up to n terms using recursion. **(06 Marks)**
   c. List the storage class specifiers. Explain any one of them. **(04 Marks)**

Module-5

9 a. Define a structure. How would you declare and initialize structure variables? Give examples. **(07 Marks)**
   b. Define a Pointer. How the pointers are declared and initialized? **(06 Marks)**
   c. Write a C program to read details of 10 students and to print the marks of the student if his name is given as input. **(07 Marks)**

OR

10 a. Write a program in C to add two numbers using pointers. **(05 Marks)**
    b. How would you explain the categories of preprocessor directives in C? **(10 Marks)**
    c. How would you explain nested structures? **(05 Marks)**

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