USN ☐☐☐☐☐☐☐☐☐☐

18CPS13/23

First/Second Semester B.E. Degree Examination, Dec.2024/Jan.2025
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 different generations of computer.   **(10 Marks)**
   b. With a neat block diagram of computer explain its components.   **(10 Marks)**

OR

2 a. Write the basic structure of C program. Briefly explain each section.   **(08 Marks)**
   b. Classify the operators based on the number of operands. Explain with one example for each.
                                                                                      (08 Marks)
   c. State whether the following are valid identifiers or not: integer, char, _for, while.   **(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. Explain with suitable example how do you declare and initialize 1D array.
                                                                                      (10 Marks)
   b. Write a C program to search an element using linear and binary techniques.   **(10 Marks)**

OR

6 a. Define a string. Explain any 4 string library functions with syntax and example.   **(10 Marks)**
   b. Write a C program to copy a string (combination of digits and alphabets) to another string
      (only alphabets).   **(10 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 structure. Explain how structure members are accesses using dot (·) operator.
   (04 Marks)
   b. Write a C program to accept RollNo, Name, and Marks of students and display the sum and average of the marks using structure. **(10 Marks)**
   c. What is pointer? With example explain how pointer variables are declared and initialized.
   (06 Marks)

OR

10 a. What is preprocessor directive? Explain #define preprocessor directive. **(04 Marks)**
    b. Write a C program to compute the sum, mean and standard deviation of elements stored in an array of n real numbers using pointers. **(10 Marks)**
    c. With example explain structure within structure. **(06 Marks)**

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