USN ☐☐☐☐☐☐☐☐☐☐

17PCD13/23

First/Second Semester B.E. Degree Examination, Jan./Feb. 2021
Programming in C and Data Structure

Time: 3 hrs. Max. Marks: 100

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

Module-1

1
a. Define an algorithm? Write an algorithm to find perimeter and area of a circle. **(06 Marks)**
b. Write the structure of a C program. Explain with an example. **(06 Marks)**
c. What is an idemitifier? Classify the following as valid and invalid identifier. If invalid give reason.
i) _apple   ii) continue   iii) one_10   iv) #abc123   v) avErAgE. **(08 Marks)**

OR

2
a. Explain printf( ) and scanf( ) function with example. **(08 Marks)**
b. Convert the following mathematical expression into C expression :

i) $E = \dfrac{e^{\sqrt{x}} + e^{\sqrt{y}}}{x \sin \sqrt{y}}$

ii) $a + \dfrac{b(ad+e)}{b-a} - \dfrac{c}{d}$. **(06 Marks)**

c. Write a C program to find simple interest and display the results. **(06 Marks)**

Module-2

3
a. Explain switch statement with syntax and example. **(08 Marks)**
b. Differentiate between while and do while loops. **(06 Marks)**
c. Write a C program to reverse an integer number and check whether it is a palindrome or not. **(06 Marks**

OR

4
a. List all branching statements. Explain any two with proper syntax and example. **(08 Marks)**
b. Explain break and continue statement with example. **(06 Marks)**
c. Write a C program to find a factorial of a number using for loop. **(06 Marks)**

Module-3

5
a. What is an array? How one and two dimensional arrays declared and initialized? Give an example. **(08 Marks)**
b. Write a C program to concatenate two strings without using built in function strcat( ). **(06 Marks)**
c. What is C function? Write a C function to find cube of a number. Display the result in main( ) function. **(06 Marks)**

OR

6
a. Explain any four string manipulation functions with example. **(08 Marks)**
b. Write a C program to read N elements and find biggest element in an array. **(06 Marks)**
c. Write a C program to check a number is a prime number or not using recursion. **(06 Marks)**

Module-4

7   a. What is a structure? Write a syntax of structure declaration with an example. **(06 Marks)**
    b. Write a C program to pass structure variable as function argument. **(08 Marks)**
    c. What is file? Explain fopen( ) and fclose( ) with example. **(06 Marks)**

OR

8   a. Write a C program to maintain a record of 'N' employee detail using an array of structure with three fields(id, name, salary) and print details of employees whose salary is above 10000. **(08 Marks)**
    b. Write a C program to open a file for input, read in a series of numbers until end of file (eof) and display each number on the monitor. **(06 Marks)**
    c. Explain fgetc( ), fgets( ), fputc( ) and fputs( ) function with syntax. **(06 Marks)**

Module-5

9   a. What is a pointer? Write a C program to read two numbers and function to swap these numbers using pointers. **(06 Marks)**
    b. Explain different dynamic memory allocation function in C with syntax. **(08 Marks)**
    c. What is Stack? Explain operation of stack. **(06 Marks**

OR

10 a. What are primitive and non primitive data types explain with example. **(06 Marks)**
    b. Explain any two preprocessor directives in C with example. **(08 Marks)**
    c. What is queue? Explain its application. **(06 Marks)**

* * * * *