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CBCS SCHEME

USN | | | | | | | | | |

17PCD13/23

First/Second Semester B.E. Degree Examination, Dec.2018/Jan.2019

Programming in C and Data Structures

Time: 3 hrs. Max. Marks: 100

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

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages. 2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.

Module-1

1 a. What is an algorithm? Write an algorithm to find largest of 3 numbers. **(08 Marks)**
b. Explain any five operators used in C language. **(10 Marks)**
c. Explain two types of type conversions. **(02 Marks)**

OR

2 a. Explain the structure of 'C' program with an example program. **(10 Marks)**
b. Explain scanf( ) & printf( ) function in C language with syntax and example program. **(10 Marks)**

Module-2

3 a. Explain if, if-else, nested if-else and cascaded if–else with examples and syntax. **(10 Marks)**
b. Write a C program to simulate simple calculator that performs arithmetic operations using switch statement. An error message should be displayed, if any attempt is made to divide by zero. **(10 Marks)**

OR

4 a. List the differences between while loop and do-while loop. Write a C program to find the sum of natural numbers from 1 to N using for loop. **(10 Marks)**
b. Write a C program to read a year as an input and find whether it is a LEAP YEAR or not. **(04 Marks)**
c. Write a C program to find reverse of a number and check whether it is a PALINDROME or not. **(06 Marks)**

Module-3

5 a. What is an array? Explain the declaration and initialization of one dimensional and two dimensional array with an example. **(10 Marks)**
b. Explain any three string manipulation library function with example. **(06 Marks)**
c. Write a C program to implement string copy operation STRCOPY(Str1, Str2) that copies a string Str1 to another string Str2 without using library function. **(04 Marks)**

OR

6 a. What is function? Explain the two categories of argument passing techniques, with example. **(10 Marks)**
b. Write a C function isprime(num) that accepts an integer argument and return 1 if the argument is a prime or a 0 otherwise. Write a program that invokes this function to generate prime number between the given range. **(10 Marks)**

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Module-4

7 a. What is structure data type? Explain. **(04 Marks)**
b. Show how a structure variable is passed as a parameter to a function, with an example. **(06 Marks)**
c. Explain the concept of array of structures, with a suitable C program. **(10 Marks)**

OR

8 a. What is FILE? Explain fopen( ), fclose( ) functions. **(05 Marks)**
b. Explain various modes of FILE. **(05 Marks)**
c. Given two files "Studentname.txt" and "USN.txt" that contains students name and USN respectively. Write a C-program to create a new file called "output.txt" and copy the contents of files "Studentname.txt" and "USN.txt" into output file in the sequence shown below :

Student name	USN
Name – 1	USN – 1
Name – 2	USN – 2
–	–
–	–
–	–
–	–

(10 Marks)

Module-5

9 a. Define a pointer. Explain how pointer variable is declared and initialized. **(05 Marks)**
b. What are primitive and non – primitive data types? Give examples. **(05 Marks)**
c. Write a program using pointers to compute sum, mean and standard deviation of all elements stored in an array of "n" real numbers. **(10 Marks)**

OR

10 a. Explain any 2 pre- processor directives in 'C' language. **(05 Marks)**
b. What is a STACK? Explain its applications. **(05 Marks)**
c. What is a QUEUE? Explain with example. **(05 Marks)**
d. Write a program to swap 2 numbers using call-by-reference method. **(05 Marks)**

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