CBCS SCHEME

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.**

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)**

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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