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15PCD13/23

First/Second Semester B.E. Degree Examination, Dec.2019/Jan.2020
Programming in C and Data Structures

Time: 3 hrs.

Max. Marks: 80

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

Module-1

1 a. What is Pseudocode and its use? Write a Pseudocode for adding four (4) numbers. **(04 Marks)**
   b. Explain the structure of a 'C' program with an example syntax. **(08 Marks)**
   c. Write a 'C' program to SWAP the values of two (2) variables without using third variable. **(04 Marks)**

OR

2 a. What is an identifier? Give any five rules that are the be followed, while declaring a variable. Give example for valid and invalid. **(05 Marks)**
   b. What is an operator? Explain different types of operators in 'C'. **(07 Marks)**
   c. If $a = 2$, $b = 8$, $c = 4$, $d = 10$, what is the value of each of the following expression.
   i) $a + b/c * d - c/a$ ii) $(b/a)\% c$ iii) $a{+}{+} {+}b{-}{-}{+} d {+}{+}$ iv) ${+}{+} a + b {-}{-} + {+}{+}d$.
   (04 Marks)

Module-2

3 a. Explain switch statement with syntax. Write a program to simulate simple calculator that performs arithmetic operations using switch statement. **(08 Marks)**
   b. List four differences between while loop and do-while loop along with, syntax and example. **(08 Marks)**

OR

4 a. What are the different types of conditional decision making statements? Explain each with an example. **(09 Marks)**
   b. Write a C program to find the roots of a quadratic equation (check for valid input values) **(07 Marks)**

Module-3

5 a. What is an array? How an array is declared and initialize, explain. **(06 Marks)**
   b. Explain any four string manipulation functions along with example each. **(04 Marks)**
   c. Develop 'C' function ISPRIME (num) that accepts an integer argument and return 1 if argument is prime, a θ otherwise. Write a C program that invokes this function to generate prime no's between the given ranges. **(06 Marks)**

OR

6 a. What is a function? Briefly explain parameters passing mechanism of functions. **(05 Marks)**
   b. Write a C program to read a sentence and print the frequencies of each VOWEL total count of CONSONENTS. **(06 Marks)**
   c. Write a recursion program to compute factorial of a given number 'n'. **(05 Marks)**

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