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21PSP13/23

First/Second Semester B.E./B.Tech. Degree Examination, June/July 2024
Problem Solving Through Programming

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 a Computer? Explain various types of computers.   (10 Marks)
   b. Explain basic structure of C program along with a program to find area of a circle.   (10 Marks)

OR

2 a. With a neat diagram, explain architecture of computer.   (10 Marks)
   b. What is a token? List all types of tokens used in C programming language with an example for each. And also explain how to use below listed six operators with an example for each
      i) !   ii) size of   iii) + +   iv) ,   v) ∧   vi) >> =   (10 Marks)

Module-2

3 a. List all branching statements used in C programming language. Explain any three two-way selection statements with an example for each. Also write their syntax and flowchart.   (10 Marks)

   b. Develop an algorithm, flowchart and also write C program for
      i)   To swap values of two variables without using third variable.
      ii)   To compute simple interest.   (10 Marks)

OR

4 a. With syntax, flowchart explain switch statement? Write a C program to simulate simple calculator.   (10 Marks)
   b. Explain formatted output function used in C with its control string specifications:
      i)   Write printf statement to display "VTU\' Belagavi"
      ii)   Write printf statement to display +0.45.234 using appropriate control string.
      iii)   Write printf statement to display Oxabba using appropriate control string.   (10 Marks)

Module-3

5 a. Define an array. Explain the declaration and initialization of single dimensional array with examples.   (10 Marks)
   b. Explain any five string manipulation functions available in string.h with an example for each.   (10 Marks)

OR

6 a. What is Two-dimensional array? Explain its declaration and initialization with example.   (10 Marks)
   b. What is a string? Give its declaration with examples. Explain unformatted string input and output function with an example for each.   (10 Marks)

Module-4

7 a. Explain elements of function definition, with an example. **(10 Marks)**
   b. What is user defined function and library function? What is call-by-value method? Implement a C program to add two numbers using call-by-value-method. **(10 Marks)**

OR

8 a. What is function? Explain classification of user defined function based on parameter passing and return value with an example for each. **(10 Marks)**
   b. Highlight the differences between call-by-value and call-by-reference methods. Implement a C program to generate Fibonacci series of N numbers using recursion. **(10 Marks)**

Module-5

9 a. What are storage classes in C programming? Explain their lifetime, scope, initial value and storage space. Also explain use of auto and register storage classes. **(10 Marks)**
   b. Implement structure to read, write, compute average marks of n students. Display the names of students whose average is below 50 and above 50 marks. **(10 Marks)**

OR

10 a. What are preprocessor directives? Explain various types of preprocessor directives with example for each. **(10 Marks)**
   b. What is pointer? Develop a program using pointers to compute the sum, mean and standard deviation of all elements stored in an array of N real number. **(10 Marks)**

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