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14PCD13/23

First/Second Semester B.E. Degree Examination, Aug./Sept.2020
Programming in C and Data Structures

Time: 3 hrs. Max. Marks:100

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

Module – 1

1 a. Explain basic concepts of C program. **(08 Marks)**

b. Define variable. Give example. List out any four rules to be followed while using a variable. **(06 Marks)**

c. Write a C program to swap the contents of two variables. **(06 Marks)**

2 a. Explain relational operators in C with example. **(08 Marks)**

b. Define Pseudocode. What is its purpose? Write pseudocode to display numbers from 1 to 10 along with their squares. **(06 Marks)**

c. What would be the value of 'a' after the execution of the following expressions:
(i) a+ = (a++) + (++a) (ii) a = (– – a) – (a – –) **(06 Marks)**

Module – 2

3 a. Explain single selection and two way selection in C language along with syntax. **(08 Marks)**

b. What is purpose of switch statement? Explain with syntax. **(04 Marks)**

c. Write a C program to simulate the working of a calculator with addition, subtraction, multiplication and division. Use switch. **(08 Marks)**

4 a. How do you perform looping in C? Give the syntax of loop constructs. **(08 Marks)**

b. Explain the following statements supported in C – break, continue, goto. **(06 Marks)**

c. Write a C program to find the sum of individual digits of the given number. **(06 Marks)**

Module – 3

5 a. What is an array? Explain the declaration and initialization of two dimensional arrays with example. **(06 Marks)**

b. Write a C-program to sort the given numbers in ascending order using bubble sort technique. **(06 Marks)**

c. Explain any four string manipulation library functions with examples. **(08 Marks)**

6 a. What is a function? explain the different types of functions **(06 Marks)**

b. Write a recursive program to find the factorial of a given number. **(10 Marks)**

c. Explain different parameter passing techniques used in C functions. **(04 Marks)**

Module – 4

7 a. What is a structure? Explain the syntax of structure declaration with an example. **(06 Marks)**

b. Write a C program to maintain an employee information consisting of three fields (empid, name, salary) using array of structures. **(10 Marks)**

c. Explain with an example how fscanf( ) and fprintf( ) function is used with the file. **(04 Marks)**

8 a. Write a program to copy the content of one file to other file. (08 Marks)
b. What is a file? Explain the different modes in which the file can be opened. (06 Marks)
c. What are command line arguments? Explain its parameters. (06 Marks)

Module – 5

9 a. What is pointer? Explain how pointer variables are declared and initialized with example. (04 Marks)
b. Write a C program using pointer to compute the sum, mean and standard deviation of all elements stored in an array of n real numbers. (10 Marks)
c. What is dynamic memory allocation? Explain different dynamic memory allocation. (06 Marks)

10 a. What is preprocessor? Explain # define preprocessor directive. (04 Marks)
b. What is data structure? What are primitive and non primitive data types? (04 Marks)
c. Write note on:
(i) Stack (ii) Queue (iii) Linked list (iv) Tree (12 Marks)

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