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14PCD13/23

First/Second Semester B.E. Degree Examination, Dec.2017/Jan,2018
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 a token? Explain different types of tokens in C-language. (06 Marks)
- b. What is an operator? Explain the arithmetic, relational, logical and bitwise operators in C-language. (10 Marks)
- c. Simplify the expression $a + b * c - 5$ where $a = 5$, $b = 3$ and $c = 7$. (04 Marks)

OR

- 2 a. List and explain primitive datatypes in C-language. (06 Marks)
- b. What is a variable? Explain the rules used for naming a variable. (07 Marks)
- c. Write a program to find the area and perimeter of a circle. (07 Marks)

Module-2

- 3 a. Explain ternary operator with an example. (04 Marks)
- b. What is goto statement? Explain the disadvantages of a goto statement. (06 Marks)
- c. What is a loop? Explain the different types of loops in C-language. (10 Marks)

OR

- 4 a. Write a C program to compute $\sin(x)$ using Taylor series :

$$\sin(x) = x - \left(\frac{x^3}{3!}\right) + \left(\frac{x^5}{5!}\right) - \left(\frac{x^7}{7!}\right) + \dots$$
 (10 Marks)
- b. List the difference between break and continue statements. (06 Marks)
- c. Explain nested for loop with an example. (04 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)

OR

- 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)

OR

- 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 a pointer? Mention the advantages of pointers. (04 Marks)
b. List out the difference between malloc(), calloc() and realloc() functions. (06 Marks)
c. what is a stack? Write a program in C to perform various operations on stacks. (10 Marks)

OR

- 10 a. What is a macro? Write a program to find the square of a number using macros. (06 Marks)
b. List out the difference between static memory allocation and dynamic memory allocation. (08 Marks)
c. Explain : i) preprocessor directives ii) symbolic constants. (06 Marks)
