USN | | | | | | | | | | |

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 land 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 :

$$\sin(x) = x - \left(\frac{x^3}{3!}\right) + \left(\frac{x^5}{5!}\right) - \left(\frac{x^7}{7!}\right) + ----$$ **(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)**

* * * * *