1220

Code : 15CS41T

Register Number

IV Semester Diploma Examination, Nov./Dec.-2018

DATA STRUCTURES USING 'C'

Time : 3 Hours] **[Max. Marks : 100**

Instructions : (1) Answer any **six** questions from Part – **A**. Each carries **5** marks.

(2) Answer any **seven** full questions from Part – **B**. Each carries **10** marks.

PART – A

1. Explain address operator and indirection operator with example.

2. Define pointer. List any two advantages and disadvantages of pointer.

3. Explain formatted input and output functions of file.

4. Explain any five operations on data structures.

5. Diagrammatically how do you represent Singly Linked List ? Explain.

6. Write an algorithm to perform PUSH and POP operations of stack.

7. Define Stack. How to represent stack in 'C' ?

8. Explain degree of a tree and depth of a tree with an example.

9. Construct the binary tree for the following data :

   14, 3, 8, 11, 16, 19, 7, 2, 10, 18

PART – B

10. Write a 'C' program to illustrate the use of function pointer.

11. (a) Explain with syntax fopen() and fseek() functions. 5

    (b) Write a program to count the number of characters in a given file. 5

12. (a) Explain with fig. circular and doubly linked list. 6

    (b) List the advantages and disadvantages of a linked list. 4

13. Write 'C' functions to insert a node at the end and to delete a node from the beginning of a linked list.

14. Write a 'C' program to implement Queue operations using array.

15. Explain with figure : $2 \times 5 = 10$

    (a) Circular queue

    (b) Dequeue

16. What is binary tree traversal ? Explain types of traversals with example.

17. Explain with an example Quick Sort Method.

18. Write a 'C' program to implement linear search technique.

19. (a) List the applications of linked list. 4

    (b) Give the postfix and prefix forms for the following expression : 6

    A $ B * C – D + E / F / G + H