PMMC/M-17   10075

DATA STRUCTURES
CS-DE-13

Time : Three Hours]   [Maximum Marks : 80

Note :   Attempt *Five* questions in all. Q. No. **1** is compulsory. Attempt *four* more questions selecting *one* question from each Unit. All questions carry equal marks.

1.   Answer the following questions in brief :

  (a)   Describe any *one* sting operation with example.

  (b)   What do you mean by algorithm complexity.

  (c)   Describe one important application of linked list.

  (d)   What is a priority queue ?

  (e)   What do you mean by recursion ?

  (f)   Describe any *one* method of tree traversal.

  (g)   How is sorting done using Bubble sort ?

  (h)   How is a graph represented using adjacency matrix ?

Unit I

2.   What are data structures ? How are primitive and composite data structures distinguished ? Give *two* examples of each type to highlight their distinction.

3. What is the importance of an array as a data structure in solving problems ? When is a two-dimensional array used for solving problems ? Explain with the help of a suitable example.

Unit II

4. Describe the following :

(a) Inserting an element in Linked list

(b) Two-way list.

5. List the operations that can be performed on a stack. Also describe the linked and array representation of stacks.

Unit III

6. (a) What is Polish Notation ? Use an example to show how a stack can be used for evaluating Polish Notation ?

(b) What is a threaded binary tree ? What is its advantage ?

7. (a) What is a Binary Search Tree ? How is insertion and deletion performed in a Binary Search Tree ?

(b) Describe Heap sort using an unsorted list of elements of your choice.

Unit IV

8. (a) Describe the Warshall's algorithm as applied on graphs.

(b) What do you mean by 'Traversing a graph' ? Describe one method for traversing a graph.

9. Distinguish between :

(a) Linear search and Binary search

(b) Radix sort and Merger sort.