Roll No…… Total Pages: 3

10504

MBA/M-18

DATA STRUCTURE

Paper: MCA-14-24

Time: Three Hours Maximum Marks: 80

Note: Attempt five questions including No. 1 which is compulsory. All questions carry equal marks.

Compulsory Question

1. (a) What do you mean by data structure?

   (b) Why pointers are required?

   (c) Discuss one application of queue in brief.

   (d) How binary tree is stored in computer memory?

   (e) Define directed and undirected graph.

   (f) How a linked list can be traversed?

   (g) What is a splay tree?

   (h) How collisions are handled in hashing?

2. (a) What do you mean by complexity of algorithms?How it is calculated? Explain with suitable examples.

   (b)Write down the algorithms of pattern matching and explain with appropriate examples.

3. (a) Discuss arrays and its types? How can you calculate address of any element in the arrays? Explain using suitable examples.

   (b)Write an algorithm to search an element from an array.

UNIT-II

4. (a) Write down the algorithm for searching in a linked list.

   (b)Write down the algorithm for inserting an element in a doubly linked list.

5. (a) Write down the algorithm for push and pop operations in a stack.

   (b) Write an algorithm to convert an infix expression in to a postfix expression.

UNIT-III

6. (a)Write an algorithm for traversing atree using postorder traversal.

   (b)Explain the prim's algorithm to find minimum spanning tree using an example.

7. (a)What is a Red-Black Tree? Explain the procedure to insert an element in a Red-Black tree using suitable example.

   (b)What is B+tree?Explain the procedure to insert and delete an element in a B+ tree using suitable example.

UNIT-IV

8. What do you understand by graph? Write down the algorithms to traverse the graphs using various ways.Explain the algorithms using appropriate examples.

9. Write down an algorithm to sort the data using merge sort.Explain the algorithm using suitable example.