b) What is graph? Explain the graph representation methods - adjacency matrix, adjacency lists with example.

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Total No. of Questions :10]   [Total No. of Printed Pages :4

MCA - 203
MCA II Semester
Examination, December, 2012
Data Structure

Time : Three Hours

Maximum Marks : 70

Note : 1. Attempt any one question from each unit.
2. All questions carry equal marks.

UNIT - I

1. a) Convert the following prefix expression into post-fix expression.

   $+ - *\$ABCD//EF+GH$

   b) What is the circular queue? Write an algorithm to perform insertion and deletion operation on circular queue.

                         OR

2) a) Convert the following prefix expression into Infix expression.

   $+ - *\$ABCD//EF+GH$

   b) What are the drawbacks of linear queue? Write a program to perform insertion and deletion operation on linear queue.

UNIT - II

3) a) How the polynomial is represented through linear link list? Explain with example.

b) Write an algorithm to insert & delete an item from the circular link list.

OR

4) a) Write an algorithm to add two polynomials using link list.

b) Write an algorithm to merge two given link list.

UNIT - III

5) a) What is Threaded Binary Tree? Write an algorithm for in-order traversing of a right in-threaded binary tree.

b) Construct a binary Tree. For the given Inorder and post-order Traversing.

Inorder : A+B*C$A+B*C

Post-order : ABC*+AB+C*$

OR

6) a) Define complete binary tree and almost complete Binary Tree. Prove that a strictly Binary tree with n leaves always contains 2n-1 nodes.

b) Write an algorithm to Traverse a Tree in pre-order without recursion.

UNIT - IV

7) a) What is searching? What is Binary search? Write an algorithm for Binary search.

b) What is collision? What are the different methods of collision resolution? Explain.

OR

8) a) What is hashing ? What are different methods of hashing? Explain with example.

b) What is Heap sort? Illustrate with an example.

UNIT - V

9) a) What is graph? What are the different methods of graph traversing? Traverse the following graph using both methods.
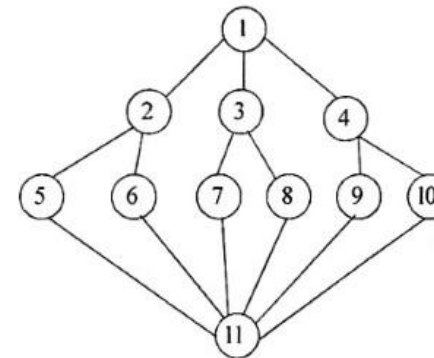
b) What are the differences between B-tree and B^+-Tree. Construct the B-Tree of order - 5 of the following data value.

1, 7, 6, 2, 11, 4, 8, 13, 10, 5, 19, 9, 18, 25, 3, 12

15, 22, 23, 17

OR

10) a) What is minimum spanning Tree? Find the minimum spanning tree of the following graph.