2014

Time : 3 Hours

Full Marks – 75

Candidates are required to give their answers

In their own words as far as practicable

The question are of equal value

Answer any five questions

Group A

1. **Explain the classification of data structures.**

2. **What is an algorithm? Discuss best case, average case and worst case analysis of algorithm.**

3. **What do you mean by fucue data structure? Explain the different types of fucue data structure with their characteristics.**

4. **a) What are the advantages of a doubly linked list over a singly linked list?**

    b) Write an algorithm to insert a new node at the end of a singly linked list.

5. **a) How can you represent a Binary tree?**

    b) Discuss In order, Preorder & Post order traversal of a Binary tree.

6. **Convert the following infix expression into its equivalent prefix and postfix from:**

    a) a + (b+c*(d+e)) + f/g

    b) a +((b+c) * (d+e) + f/g)

7. **Draw a binary tree with the following sequence of nodes in pre order and In order Traversal :**

    Preorder : G, B, Q, A, C, K, F, P, D, E, R, H

    Inorder : Q, B, K, C, F, A, G, P, E, D, H, R

8. **Explain Breadth first travessal and Depth travessal of a graph.**

9. a) Write an algorithm for selection sort.

 b) Sort the following list in ascending order using selection sort :

 56, 57, 92, 38, 44, 90, 61, 73

10. Write short notes on any three the following :

 a) Searching

 b) Applications of stock

 c) Abstract data types

 d) Hash table

 e) Directed and Undirected graphs.