2009

Time : 3 Hours

Full Marks :75

Candidate are required to give their answers in their own words as far as practicable.

Answer any **Five** questions.

Question no.1 is compulsory

All Questions have equal marks.

Q.1   a) Define different data structure operations. Also define linear and non-linear data structure.

b) Explain time complexity of algorithm.

2.   a) What do you mean by an array? Give their characteristics features.

[Turn-over]

b) What is Stack? How is it different from queue? What are the possible operations that can be performed on the stack?

3. Define binary search tree. How can it be stored in computer memory as an array?

4. What are the different types of sorting? Give algorithm for bubble sort. Also calculate the complexity.

5. What is linked list? How it is different from array? How can insertion and deletion operation can be performed in linked list?

6. Differentiate among graph, tree, binary tree and complete binary tree.

7. Construct the given infix expression into postfix expression

   A + (B *C – (D / E ^ F) * G) *H

8. Write the algorithm of quick sort and calculate the complexity of quick sort in worst case.

9. Write the algorithm of Kruskal and Prim's for minimum spanning tree.

[Continued]

10. Write short notes on any three of the following :

   a) Depth and breadth first tree.

   b) Hash table and collision resolution technique

   c) Heap sort

   d) Traversal of binary tree.

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