

OCTOBER 2013

**P/ID 17460/  
RCK/PCAK**

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Time : Three hours

Maximum : 75 marks

PART A — (5 × 5 = 25 marks)

Answer ALL questions.

1. (a) Write ADT operations for array implementation of polynomial addition.

Or

- (b) Discuss on the complexity analysis of an algorithm.

2. (a) Write a program to illustrate stack operations.

Or

- (b) Describe the deletion operation in Singly and Doubly Linked List.

3. (a) Define Graph. List some properties of the graph.

Or

- (b) Give brief explanation about the Tree Traversal Techniques.

4. (a) Derive the time complexity of Selection Sort.

Or

- (b) Discuss about Optimal Sorting Time.

5. (a) Explain Deletion operation in Red Black Tree.

Or

- (b) Define Hashing. Discuss about the advantages of various Hashing Techniques.

PART B — (5 × 10 = 50 marks)

Answer any FIVE questions.

All questions carry equal marks.

6. Derive the best, average and worst case time complexity for linear search.
7. Explain in detail about ordered lists and polynomials.
8. Compare Doubly and Circularly Linked List to perform an insertion operation.
9. Explain the operation to find the minimum cost spanning tree of an undirected, weighted graph.
10. Explain with suitable examples the basic heap operations and algorithm for the same.

11. Write a program to sort the elements whose worst case is  $O(n^2)$  and average case is  $O(n \log n)$ .
  12. Explain the working of different Hashing Techniques.
  13. Write the procedure to implement single and double rotations while inserting nodes in an AVL tree.
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