



B.Sc. (With Credits)-Regular-Semester 2012 Sem IV

B.Sc.24141 Computer Science-I

(Data Structures Paper - I)

P. Pages : 3

Time : Three Hours

Max. Marks : 50

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- Notes :
1. All questions are compulsory and carry equal marks.
 2. Draw neat and Labeled Diagram wherever necessary.
 3. Avoid vague answers and write answers relevant and specific to questions only.

1. Either 10

- a) Define insertion sort? Write an algorithm for insertion sort.
- b) What is array? Explain memory representation of one dimensional array with suitable diagram.

OR

- c) What is sorting? Write an algorithm for linear search.
- d) What is multidimensional array? Explain the memory representation of two dimensional array with suitable diagram.

2. Either 10

- a) What is stack? Explain push and pop operation with help of diagram.
- b) Write an algorithm to insert an element into stack.

OR

- c) What is queue? Elaborate various representation of queue.
- d) Write an algorithm to insert an element in to queue.

3. Either 10

- a) Define recursions? Explain recursion with example.
- b) Write an algorithm for Tower of Hanoi? Explain.

OR

- c) Write a working of double linked List.
- d) Write an algorithm to insert an element in to linked list.

4. Either **10**

- a) What is binary tree? Discuss the memory representation of Binary tree.
- b) Write an algorithm to insert an element into binary tree.

OR

- c) Define Graph? Write down various terminology used in graph? Explain Sequential representation of graph.
- d) Write and explain Kruskal algorithm.

5. Solve all the questions. **10**

- a) Explain in short complexity of binary search.
- b) What are the application of stack?
- c) Write in short about garbage collection and free list.
- d) Explain in short about AVL tree.
