Code No: R21051 **R10** SET - 1

II B. Tech I Semester Supplementary Examinations, Dec - 2015
DATA STRUCTURES
(Computer Science & Engineering)

Time: 3 hours Max. Marks: 75

Answer any **FIVE** Questions
All Questions carry **Equal** Marks

1. a) Derive the best, average, worst case time complexity of a linear search. (8M)
   b) What is recursion? How is it different from tail recursion? (7M)

2. a) Discuss merge sort with a suitable example. (8M)
   b) Describe insertion sort algorithm and trace the steps of insertion sort for sorting the list: 96, 31,27,42,34,76,61,10,4 (7M)

3. a) What are the advantages of priority queue? Explain the implementation of Priority Queue. (8M)
   b) Write an algorithm to insert and delete a key in a circular queue. (7M)

4. a) Describe an algorithm to reverse a singly linked circular list in place. (8M)
   b) What are the advantages and disadvantages of circular linked lists? (7M)

5. a) Explain about threaded binary tree in detail. (8M)
   b) Explain the different methods to represent a binary tree and compare them. (7M)

6. What is a binary search tree? Write an algorithm for inserting and deleting a node in a binary search tree. (15M)

7. a) Describe Minimum Spanning Tree using prim's algorithm. (8M)
   b) Draw a complete undirected graph having five nodes. (7M)

8. How will you represent sets using linked lists? Describe its operations using linked lists. (15M)