Code No: CT1503 **R14**

I B.Tech. II Semester Regular Examinations, June 2015

DATA STRUCTURES

(Common to Electronics and Communication Engineering and Information Technology)

Time: 3 Hours **Max. Marks: 60**

Note: All Questions from **PART-A** are to be answered at one place.

Answer any **FOUR** questions from **PART-B.**

PART-A

6×2 = 12M

1. Write a short note on doubly linked list.
2. Explain about stacks.
3. List out Applications of Queues. .
4. Discuss about binary trees.
5. Discuss about insertion sort.
6. Describe various representations of graphs.

PART-B

4×12 = 48M

1. a) Explain the operations of data structures? (6M)
   b) Write a 'C' program to perform deletion operation in the middle of a single linked list. (6M)
2. a) Write an algorithm for converting infix expression to postfix expression. (6M)
   b) Write a C program to implement stack ADT using arrays. (6M)
3. a) What is circular queue. Explain the operations of circular Queues (6M)
   b) Explain the operations of Queues with examples. (6M)
4. a) Define a Binary Search Tree ? Write the procedures to perform insertion and deletion in a binary search tree ? (6M)
   b) Draw an expression tree for the given infix expression: ((a+b)*(a-b)) (6M)
5. a) Sort the following numbers using Quick sort
   45, 34, 12, 46, 27, 56, 11, 87, 6, 33, 28 (6M)
   b) Write an algorithm for Bubble sort and explain with an example (6M)
6. a) Explain the BFS technique in detail with an example. (6M)
   b) Explain about the Prim's algorithm with an example. (6M)

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