SE sem III Rev (CBGS) NOV Dec 2016

IT, DSAA

9/12/16

Q.P. Code: 552301

(3 Hours) **[Total Marks : 80**

N.B. : (1) Question No.1 is Compulsory.
(2) Answer **any three** out of remaining questions.
(3) Assume suitable data if necessary.
(4) **Figures** to the **right** indicate full **marks.**

1. (a) Define Algorithm and write its properties. **3**
   (b) Write properties of B-Tree. **3**
   (c) Define minimum spanning trees with examples. **3**
   (d) What is Queue ADT ? Mention its operations. **3**
   (e) What is linked list ? Explain types of linked list. **3**
   (f) Define Recursion ? State its advantages and disadvantages. **3**
   (g) Explain linear and non-linear data structures. **2**

2. (a) Write a program to implement queue using arrays. **10**
   (b) Write an algorithm for insertion and traversal in a circular linked list. **10**

3. (a) Write a program to convert INFIX expression into POSTFIX expression. **10**
   (b) Write an algorithm to implement Heap-sort. Also comment on its complexity. **10**

4. (a) Define AVL Tree ? Construct AVL Tree for the following data (Mention type of rotation for each case) **10**
   10,40,30,20,70,50,45.
   (b) Write a program to implement Priority Queue. **10**

5. (a) Explain BFS and DFS algorithm with examples. **10**

(b) What is Binary Search-Tree ? Construct the Binary Search Tree for the following set of data : **10**

14, 10, 1, 20, 17, 24, 18, 12, 15, 11, 4, 6 .

6. Write short notes on **any four** of the following:- **20**

(1) Red-black Trees
(2) Searching Algorithms
(3) Adjacency list and Adjacency matrix
(4) Euclid's Algorithm
(5) Expression Trees
(6) Asymptotic Notations.
