

CODE: 17CD05101

M. Tech I Year I Semester Regular Examinations, February 2018
ADVANCED DATA STRUCTURES AND ALGORITHMS
(CSE)

Time: 3 hours

Max Marks: 60

Answer all **five** units. (5 x 12 = 60 Marks)

UNIT-I

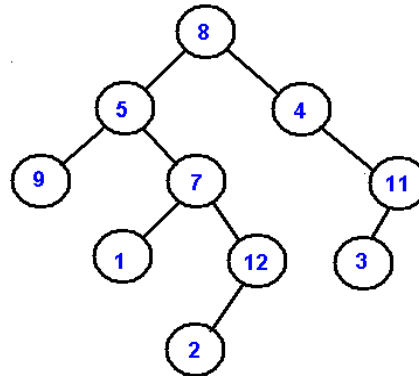
1. (a) Design an algorithm to illustrate the operations of stack.
(b) Describe Linked stacks with the help of example.

OR

2. (a) With the help of example, explain queue.
(b) Illustrate in details the different time efficiency of an algorithm.

UNIT-II

3. (a) With neat diagram explain Binary Tree.
(b) Compute the PreOrder and InOrder Traversal for the given below tree:



OR

4. (a) Define tree and its different notation with the help of example.
(b) List out the process for Post - Order Traversal of binary tree.

UNIT-III

5. (a) Define Binary Search Tree.
(b) Point out the properties of B-Tree.

OR

6. (a) List and explain any two applications of binary search tree.
(b) Define AVL tree with the help of diagram.

Continued in page 2

UNIT-IV

7. (a) Distinguish the difference between Red-Black Tree and AVL tree.
(b) Design a Quicksort Algorithm.

OR

8. (a) Write short notes on
i. Splay tree.
ii. Hash function.
(b) Perform the merge sort for the given elements:
{54,26,93,17,77,31,44,55,20}

UNIT-V

9. (a) Illustrate 8 Queen's problem and also provide Backtracking solution for the same.
(b) With the help of example define Dynamic Programming.

OR

10. (a) Design an algorithm for N Queen's problem using backtracking.
(b) Consider the below graph to solve the traveling Sales Person using Backtrack.

