



II SEMESTER M.C.A

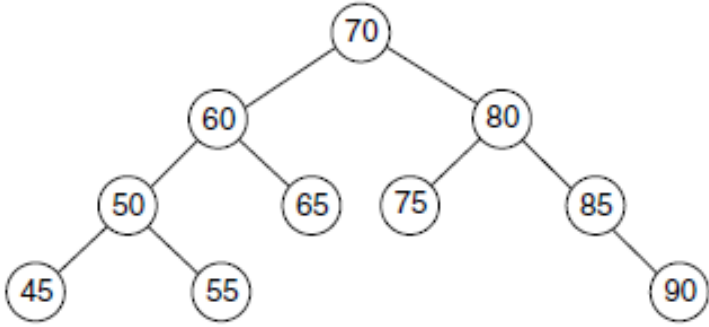
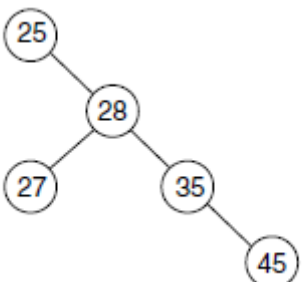
SUBJECT: DATA STRUCTURES & ALGORITHMS [MCA 4252]

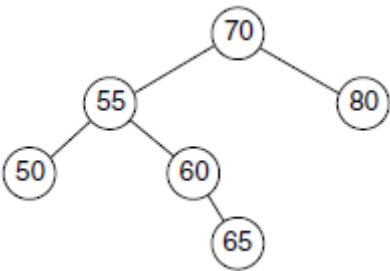
Assignment 3 (28/05/2021)

Time: 15 minutes

MAX. MARKS: 05

Instructions to Candidates: Hand written answers with Name, Registration number, Page number (in case of more than one sheet) & Signature on every sheet.

1.	<p>a. State one main difference between a Binary Search Tree and an AVL tree.</p> <p>b. Delete the node containing 60 from the binary search tree (Refer figure below). Write the steps and <i>draw the resultant tree</i> after the delete operation.</p>  <pre>graph TD; 70((70)) --> 60((60)); 70 --> 80((80)); 60 --> 50((50)); 60 --> 65((65)); 50 --> 45((45)); 50 --> 55((55)); 80 --> 75((75)); 80 --> 85((85)); 85 --> 90((90));</pre>	1
2.	<p>a. Create a binary search tree using the following data entered as a sequential set: 14 23 7 10 33 56 80 66 70</p> <p>b. Insert 44 and 50 into the tree created above. Show the steps.</p>	1
3.	<p>a. The binary search tree in the figure, <i>given below</i>, was created by starting with a null tree and entering data from the keyboard. In what sequence were the data entered? If there is more than one possible sequence, identify and write the alternative sequences.</p>  <pre>graph TD; 25((25)) --> 28((28)); 28 --> 27((27)); 28 --> 35((35)); 35 --> 45((45));</pre> <p>b. Write the preorder, inorder and postorder traversal for the above tree.</p>	1

4.	<p>Add the node 68 to the AVL tree given below. The result must be an AVL tree. Show the balance factors in the resulting tree.</p> 	2
