Task 11

First part:

1:

a)sol:

1- Inorder traversal:(10,10,15,20,45,50,55,79,90)

2- Preorder traversal:(45,15,10,10,20,79,55,90,50)

3- Postorder traversal:(10,10,15,50,55,90,79,20,45)

b)sol:

Siblings:

15: No siblings (root node)

10 (left): Siblings with the other 10 (right) under node 20.

10 (right): Siblings with the other 10 (left) under node 20.

20: Siblings with 45 (left child of the root).

45: Siblings with 15 (right child of the root).

55: Siblings with 50 (left).

79: Siblings with 90 (right).

90: Siblings with 79 (left).

Leaves:

10 (left under node 20)

10 (right under node 20)

50

90

Levels:

4 Levels

Level 1: 45 (root)

Level 2: 15 (left child of root), 79 (right child of root)

Level 3: 10 (left under 20), 10 (right under 20), 20 (left child of root), 55 (right child of 79)

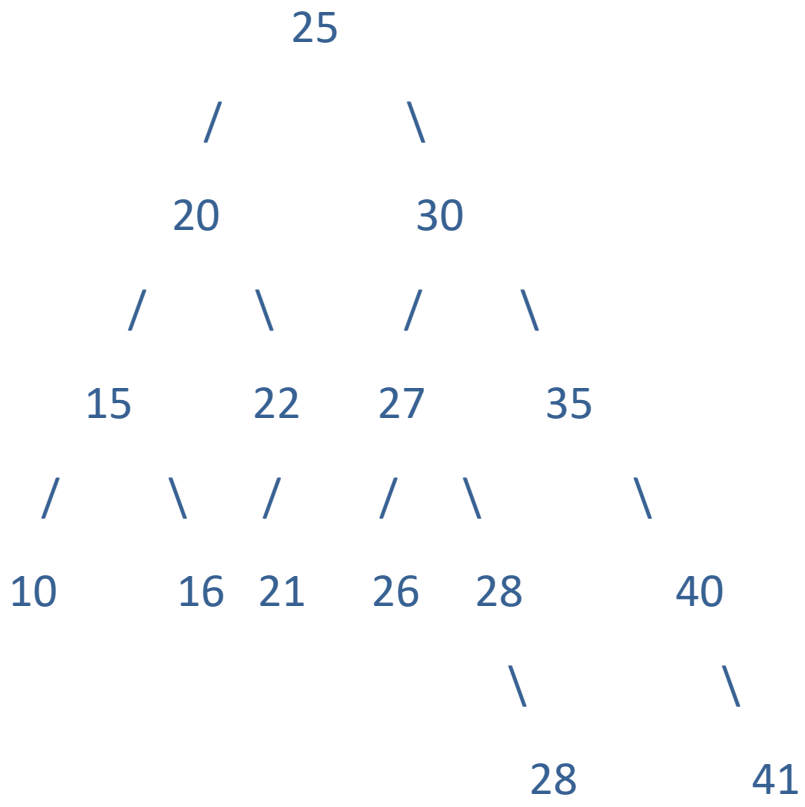
Level 4: 50 (left child of 55), 90 (right child of 79)

Type of Tree:

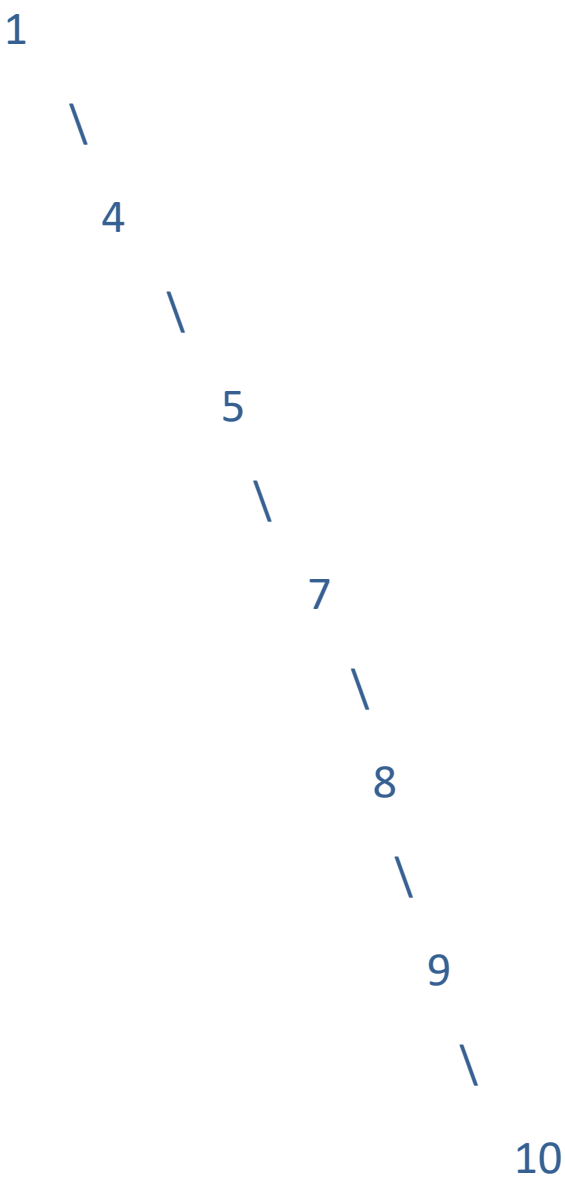
This is a binary search tree (BST)

1:

a)sol:



b)sol:



Yes, there is a significant pattern and anomaly:

Pattern: The tree is right-skewed. This means that most nodes have only left children (or no children at all).

Anomaly: Right-skewed trees deviate from the expected structure of a binary search tree (BST). In a balanced BST, each

node has, on average, roughly the same number of left and right children. This allows for efficient search and operations like insertion and deletion