**COMP 2247 Fall 2022 Assignment 10 20 points**

**(Do not write Java programs)**

**1.** (8 points)

a) Draw a **binary search tree** for the following sequence of keys which are arrived in order. Add each key to the tree one at a time.

```
29, 35, 18, 4, 8, 49, 30, 5, 23, 33
```

b) Remove the node 18 and redraw the tree.

c) Pre-order traverse the binary search tree above.

d) Post-order traverse the binary search tree above.

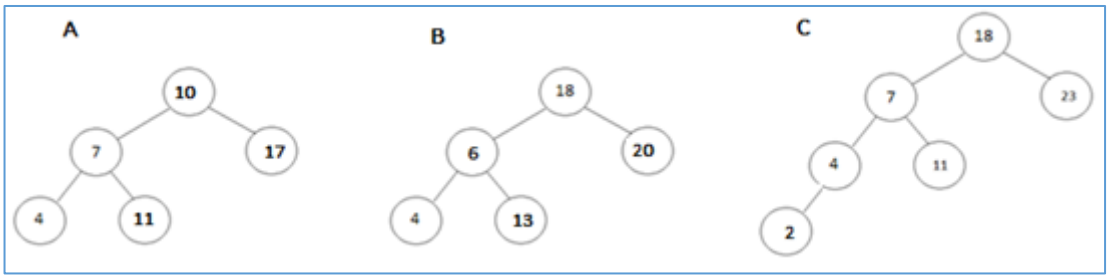
e) In-order traverse the binary search tree above.

**2.** (4 points)

a) Which of the following tree(s) is/are AVL tree(s)?

b) Which of the following tree(s) is/are not AVL tree(s)?

c) Explain your answers.




3. (8 points)

a) Draw a **min-heap** for the sequence of keys below which are arrived in order.

Show your work to add each key to the heap one at a time.

```
13, 24, 7, 16, 20, 5, 18, 22, 3, 4
```

b) Remove the node with the smallest key and restore the heap.

Show your work

c) Remove the node with the smallest key again and restore the heap.

Show your work

**Due date:** **Wednesday, 12/7/22**