

# *COS212 (Data Structures and Algorithms)*

## *Tutorial 4: Exercise*

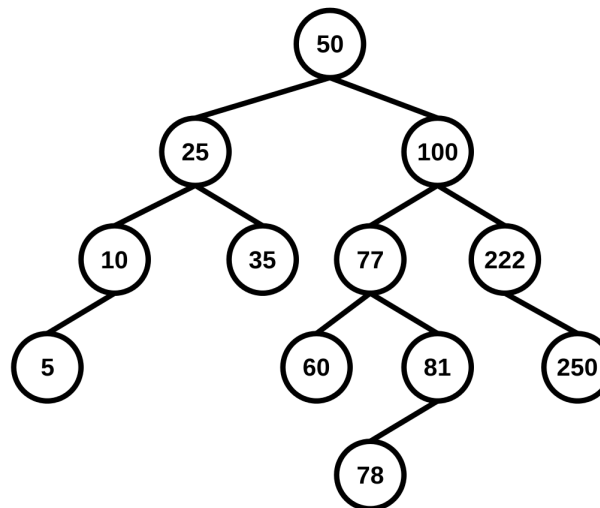
*2021/04/13*

### **Question 1** ..... (5 marks)

- 1.1 [2 points] Draw the BST after the numbers have been inserted in the following order: 11, 3, 5, 13, 4, 12, 9, 10
- 1.2 [2 points] If the tree was double-threaded, what would be the number of left threads? Right threads?
- 1.3 [1 point] How should the search algorithm be modified to work on double-threaded trees?

### **Question 2** ..... (3 marks)

The following binary search tree is given:



- 2.1 [1 point] If the node 100 is deleted by merging using the 100's predecessor, what would be the height of the resulting tree?
- 2.2 [1 point] If the node 100 is deleted by copying using the 100's predecessor, what would be the height of the resulting tree?
- 2.3 [1 point] If the node 50 is deleted by merging using the 50's successor, what would be the height of the resulting tree?