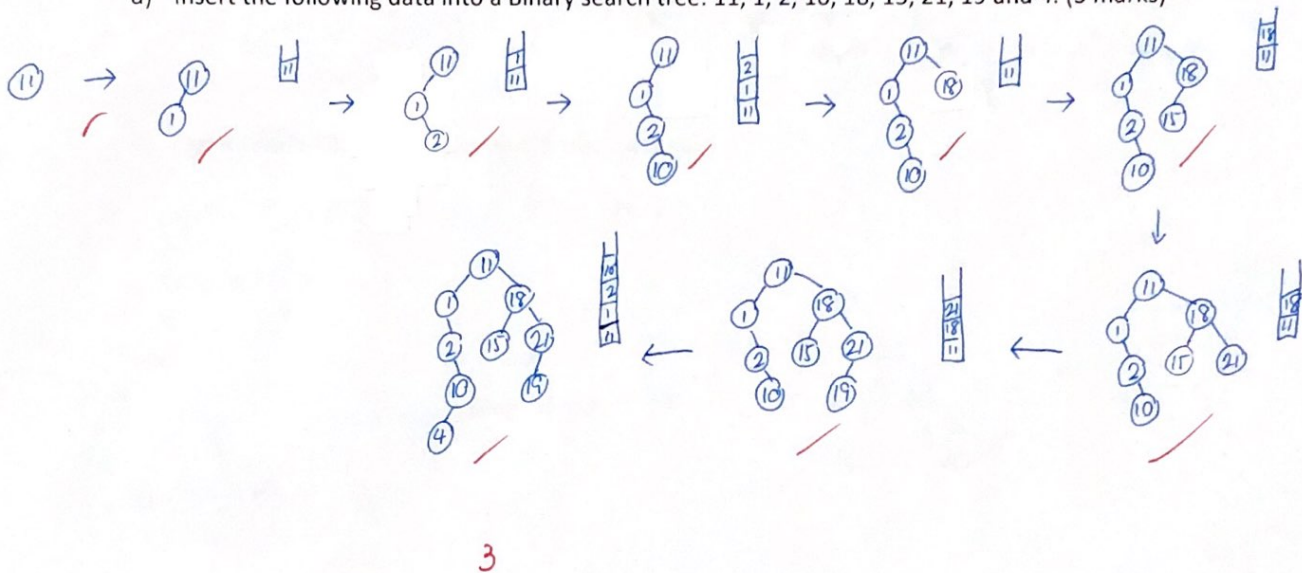Goh Wei Zhe

Quiz 2

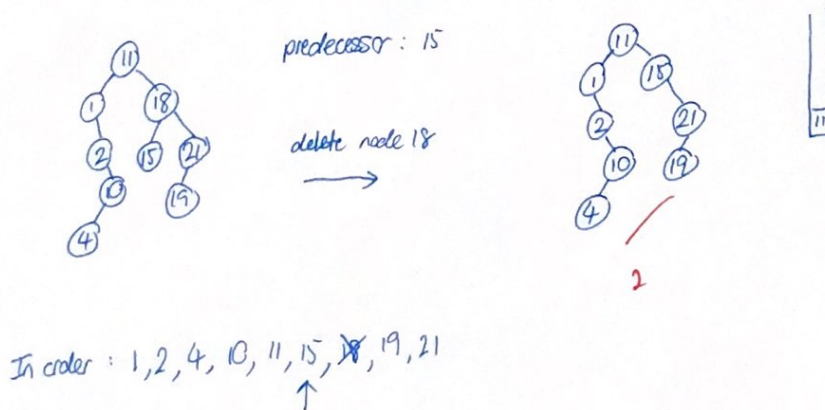Answer **ALL** the questions   (15)   Total marks - 15

Time – 30 min

1. The following questions are on binary search trees (BSTs). Show what happens after each operation. Show any interim operations where applicable.

a) Insert the following data into a Binary search tree: 11, 1, 2, 10, 18, 15, 21, 19 and 4. (3 marks)
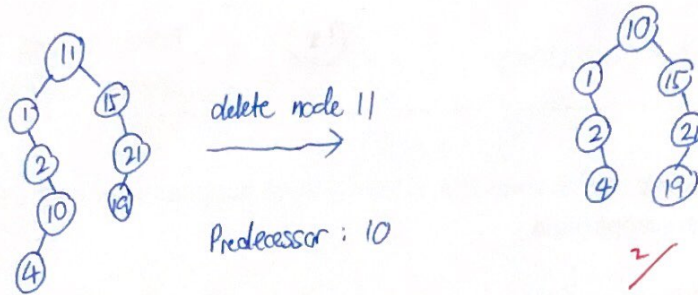

3

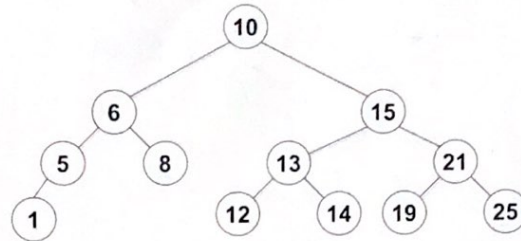b) Delete node 18 from the resulting tree in (a). (2 marks)

predecessor : 15

delete node 18
⟶

2

In order : 1, 2, 4, 10, 11, 15, ~~18~~, 19, 21

(5)

c) Delete node 11 from the resulting tree in (b) (2 marks)

delete node 11
⟶

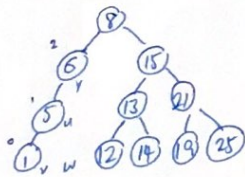Predecessor : 10

In order : 1, 2, 4, 10, 11, 15, 19, 21

2/

②

2. The following questions act on the tree below. Show what happens after each operation. Show any interim operations where applicable.
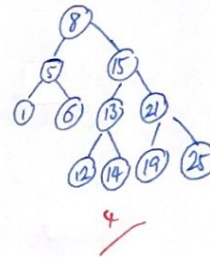

a) Delete node 10 from the above AVL tree: (4 marks)

Inorder: 1, 5, 6, 8, 10, 12, 13, 14, 15, 19, 21, 25

Predecessor: 8

BF = 2 > 0 , case 2

$H_v > H_u$, promote u once $\rightarrow$