Islamic University of Technology
Department of Computer Science of Engineering
CSE 4303 (Data Structures)
Program : CSE
10th May, Winter 2021

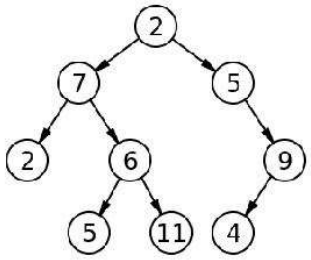
Time: 30 minutes. Full Marks: 20

- Write your name and student ID on the answer script.
- The renaming format of the answer script is 'ID_Quiz02_4303.pdf

1 Propose an algorithm to delete an element from the i^{th} position ($1 \leq i \leq heapsize$) of a Max-Heap (assume the heap is maintained using an array). Mention the time complexity and space complexity of your proposed solution. 6

2 The following set of numbers represent a min-heap. 7
2, 5, 3, 10, 15, 7, (IDx100), 20
Demonstrate the step-by-step operation of the Heap-sort algorithm to sort the numbers in descending order.
['ID' represent the last two digits of your studentID]

3 7



Showing the step-by-step operations, find the height of the above-mentioned tree using the following algorithm:

```
1. FindHeight(Node *root)
2.   if(root==Null) return -1;
3.   left_H= FindHeight(root->left);
4.   right_H= FindHeight(root->right);
5.   return max(left_H + right_H)+1
```