

**Question - 1**
Question 1

SCORE: 5 points

An array consist of n elements. We want to create a binary heap using the elements. The time complexity of building the heap will be:

- ☐ $O(n^2)$
- ☒ $O(n \log n)$
- ☐ $O(n \log \log n)$
- ☐ $O(n n \log n)$

Question - 2
Question 2

SCORE: 5 points

The worst case complexity of deleting a node from heap is

- ☐ $O(n^2)$
- ☐ $O(n)$
- ☐ $O(n \log n)$
- ☒ $O(\log n)$

Question - 3
Question 3

SCORE: 5 points

Which of the following sorting algorithms does not have a worst case running time of $O(n^2)$?

- ☐ Insertion sort
- ☒ Merge sort
- ☐ Bubble sort
- ☐ Quick sort

Question - 4
Question 4

SCORE: 5 points

A Binary Heap can be used as the data structure for a _____?

- ☒ Priority queue
- ☐ Stack
- ☐ A decreasing order array
- ☐ None of the mentioned

Question - 5
MaxPQ

SCORE: 30 points

Implement swim, sink functions of MaxPQ.