Started on	Wednesday, 3 May 2023, 10:31 AM
State	Finished
Completed on	Wednesday, 3 May 2023, 10:39 AM
Time taken	8 mins 11 secs
Marks	4.50/6.00
Grade	**7.50** out of 10.00 (**75**%)

Question 1

Incorrect

Mark 0.00 out of 1.00

Which of the following is not a standard in-place sorting algorithm?

a. Selection sort ✖

b. Quick sort

c. Heap sort

d. Merge sort

The correct answer is: Merge sort

Question 2

Correct

Mark 1.00 out of 1.00

Which of the following is the recurrence relation for Heapify Operation?

a. $T(n) \leq T(2n/3) + \Theta(1)$ ✔

b. $T(n) \leq T(2n/3) + \Theta(n)$

c. $T(n) \leq T(n/2) + \Theta(1)$

d. $T(n) \leq T(3n/2) + \Theta(1)$

The correct answer is: $T(n) \leq T(2n/3) + \Theta(1)$

Question 3

Correct

Mark 1.00 out of 1.00

What is the worst-time complexity of Heapinsert operation?

- a. O(n)
- b. O(log(n)) ✔
- c. $O(n^2)$
- d. O(n log(n))

The correct answer is: O(log(n))

Question 4

Correct

Mark 1.00 out of 1.00

What is the worst-time complexity of HEAPSORT operation?

- a. $O(n^2)$
- b. O(n)
- c. O(n log(n)) ✔
- d. O(log(n))

The correct answer is: O(n log(n))

Question 5

Partially correct

Mark 0.50 out of 1.00

Which of the following sorting algorithms has the **least** worst-case running time?

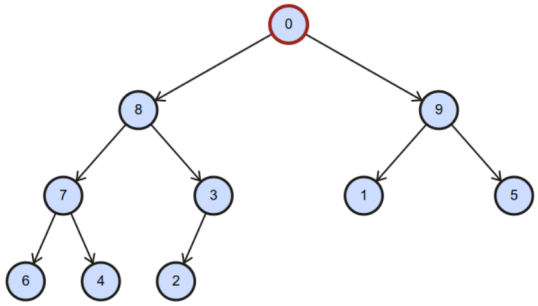
- a. Merge Sort ✔
- b. Heapsort
- c. Insertion Sort
- d. Bubble Sort

The correct answers are: Merge Sort, Heapsort

Question 6

Correct

Mark 1.00 out of 1.00



Assume we MAX-HEAPIFY the above tree from the top node.

What would be the value at the node that has the value 9 after the MAX-HEAPIFY operation?

(Please provide the answer in digits)

Answer: 5 ✔

First top node (0) gets switched with 9. Then 0 again gets switched with 5. So In place of 9 we get 5 at the end.

The correct answer is: 5