

32 Lecture - CS301

Important Mcqs

1. **What is the purpose of the percolateDown method in a heap data structure?**
- A. To insert an element into the heap.
 - B. To maintain the heap property after removing the root element.
 - C. To sort the elements in the heap.
 - D. None of the above.

Answer: B

2. **What is the time complexity of the percolateDown method?**
- A. $O(n)$
 - B. $O(\log n)$
 - C. $O(n \log n)$
 - D. $O(1)$

Answer: B

3. **Which element is swapped with the root element in the percolateDown method?**
- A. The smallest child element
 - B. The largest child element
 - C. The first element in the heap
 - D. None of the above

Answer: B

4. **What happens if the root element has no children in the percolateDown method?**
- A. The root element is removed from the heap.
 - B. The heap is left unchanged.
 - C. An error is thrown.
 - D. None of the above.

Answer: B

5. **Is the percolateDown method used in HeapSort algorithm?**
- A. Yes
 - B. No

Answer: A

6. **Which type of heap data structure is percolateDown method used for?**
- A. Max heap
 - B. Min heap
 - C. Both
 - D. Neither

Answer: C

7. **Does the percolateDown method modify the size of the heap data structure?**
- A. Yes
 - B. No

Answer: A

8. **How many elements are swapped at most in the percolateDown method?**
- A. One
 - B. Two
 - C. Three
 - D. Four

Answer: B

9. **Is the percolateDown method a recursive algorithm?**
- A. Yes
 - B. No

Answer: A

10. **What is the worst-case time complexity of the percolateDown method?**
- A. $O(n)$
 - B. $O(\log n)$
 - C. $O(n \log n)$
 - D. $O(1)$

Answer: B