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