# 31 Lecture - CS301

## **Important Mcqs**

1.	What is the time complexity of BuildHeap algorithm?  a) O(n log n)  b) O(n^2)  c) O(n)  d) O(log n)
Answer: c) O(n)	
2.	Which data structure is created by BuildHeap algorithm?  a) Array b) Linked List c) Tree d) Heap
Answer: d) Heap	
3.	What is the maximum number of swaps required in BuildHeap algorithm?  a) n-1  b) n  c) n/2 d) log n
Answer: b) n	
4.	Which sorting algorithm uses BuildHeap internally?  a) Insertion Sort b) Merge Sort c) Quick Sort d) Heap Sort
Answer: d) Heap Sort	
5.	What is the worst-case time complexity of HeapSort?  a) O(n log n)  b) O(n^2) c) O(n) d) O(log n)
Δr	pswer: a) O(n log n)

#### Answer: a) O(n log n)

- 6. Which property does a heap satisfy?
  - a) All nodes are greater than their parent nodes
  - b) All nodes are less than their parent nodes

- c) All nodes are equal to their parent nodes
- d) None of the above

### Answer: a) All nodes are greater than their parent nodes

- 7. What is the index of the last non-leaf node in a binary heap?
  - a) (n-1)/2
  - b) (n-2)/2
  - c) n/2
  - d) n-2

### Answer: b) (n-2)/2

- 8. Which operation is used to remove the root element from a heap?
  - a) Delete
  - b) ExtractMin/ExtractMax
  - c) Pop
  - d) Remove

#### Answer: b) ExtractMin/ExtractMax

- 9. Which data structure is best suited for implementing a priority queue?
  - a) Stack
  - b) Queue
  - c) Heap
  - d) Linked List

#### Answer: c) Heap

- 10. What is the worst-case time complexity of inserting an element in a heap?
  - a) O(log n)
  - b) O(n)
  - c) O(n log n)
  - d) O(1)

Answer: a) O(log n)