11 Lecture - CS301

Important Mcqs

- 1. Which of the following data structures is commonly used to implement a Priority Queue?
 - a) Linked List
 - b) Queue
 - c) Binary Heap
 - d) Stack

Solution: c) Binary Heap

- 2. Which of the following operations is commonly supported by a Priority Queue?
 - a) Enqueue
 - b) Dequeue
 - c) Insert
 - d) All of the above

Solution: d) All of the above

- 3. What is the time complexity of inserting an element into a binary heap?
 - a) O(1)
 - b) O(log n)
 - c) O(n)
 - d) O(n log n)

Solution: b) O(log n)

- 4. What is the time complexity of deleting the highest-priority element from a binary heap?
 - a) O(1)
 - b) O(log n)
 - c) O(n)
 - d) O(n log n)

Solution: b) O(log n)

- 5. Which of the following is an advantage of using a Fibonacci Heap to implement a Priority Queue?
 - a) Faster insert operation than a binary heap
 - b) Lower memory usage than a binary heap
 - c) Faster delete operation than a binary heap
 - d) All of the above

Solution: c) Faster delete operation than a binary heap

- 6. Which of the following algorithms makes use of a Priority Queue?
 - a) Dijkstra's shortest path algorithm
 - b) Binary search algorithm
 - c) Bubble sort algorithm
 - d) Linear search algorithm

Solution: a) Dijkstra's shortest path algorithm

7. Which of the following data structures is commonly used to implement a Priority Queue in C++?

a) std::queue

b) std::vector

c) std::list

d) std::priority_queue

Solution: d) std::priority_queue

8. Which of the following operations is not supported by a Priority Queue?

- a) Changing the priority of an element
- b) Inserting an element
- c) Removing an element with the lowest priority
- d) Removing an element with the highest priority

Solution: c) Removing an element with the lowest priority

9. Which of the following is an application of Priority Queues?

- a) Sorting large datasets
- b) Implementing a stack
- c) Implementing a queue
- d) Task scheduling in an operating system

Solution: d) Task scheduling in an operating system

10. Which of the following is a disadvantage of using a binary heap to implement a Priority Queue?

- a) Slower delete operation than a Fibonacci Heap
- b) Higher memory usage than a Fibonacci Heap
- c) Slower insert operation than a Fibonacci Heap
- d) All of the above

Solution: a) Slower delete operation than a Fibonacci Heap