33 Lecture - CS301

Important Mcqs

	What	t is a	priority	queue	using	a heap?)
	Δ) Δ	anen	e where	elemen	ts are	arranged	lir

- A) A queue where elements are arranged in the order they are inserted
- B) A queue where elements are arranged in ascending order
- C) A queue where elements are arranged based on their priority
- D) A queue where elements are arranged in descending order

Answer: C

2. Which operation(s) can be performed on a priority queue?

- A) Insertion
- B) Deletion
- C) Retrieval of the highest priority element
- D) All of the above

Answer: D

- 3. What is the time complexity of insertion in a priority queue using a heap?
 - A) O(1)
 - B) O(log n)
 - C) O(n)
 - D) O(n^2)

Answer: B

- 4. What is the time complexity of retrieval of the highest priority element in a priority queue using a heap?
 - A) O(1)
 - B) O(log n)
 - C) O(n)
 - D) O(n^2)

Answer: A

- 5. Which data structure is used to implement a priority queue using a heap?
 - A) Array
 - B) Linked list
 - C) Stack
 - D) Queue

Answer: A

- 6. What is the property of a heap that ensures the highest priority element is always at the top?
 - A) Heap size
 - B) Heap capacity
 - C) Heap order
 - D) Heap property

Answer: D

7. Which type of heap is used to implement a priority queue?

- A) Max heap
- B) Min heap
- C) Both A and B
- D) Neither A nor B

Answer: A

8. What happens when a new element is inserted into a priority queue using a heap?

- A) The element is added to the end of the heap
- B) The element is added to the beginning of the heap
- C) The element is added to the correct position based on its priority
- D) None of the above

Answer: C

9. What happens when the highest priority element is removed from a priority queue using a heap?

- A) The last element is removed
- B) The first element is removed
- C) The element in the correct position is removed
- D) None of the above

Answer: C

10. Which of the following statements is true about a priority queue using a heap?

- A) The elements are arranged in ascending order
- B) The time complexity of insertion is O(n)
- C) The highest priority element is always at the top
- D) All elements have the same priority

Answer: C