40 Lecture - CS301

Important Mcqs

1. Which of the following data structures is a probabilistic data structure?

A) Binary search tree

B) High time complexityC) Limited applicabilityD) None of the above

Answer: A) High space complexity

	B) AVL tree C) Skip list D) Red-black tree Answer: C) Skip list
2.	In a skip list, what is the maximum number of levels that a node can have? A) 1 B) 2 C) log n D) Unlimited Answer: D) Unlimited
3.	What is the time complexity of searching for an element in a skip list? A) O(n) B) O(log n) C) O(n log n) D) O(1) Answer: B) O(log n)
4.	Which of the following operations cannot be performed on a skip list? A) Insertion B) Deletion C) Searching D) Sorting Answer: D) Sorting
5.	Which of the following is the main advantage of using skip lists over balanced trees? A) Space efficiency B) Time efficiency C) Ease of implementation D) None of the above Answer: C) Ease of implementation
6.	Which of the following is a disadvantage of using skip lists? A) High space complexity

7. In a skip list, what is the probability of a node having k+1 levels, given that it has k levels?

- A) 1/2 B) 1/4 C) 1/8
- D) 1/16 Answer: B) 1/4

8. What is the worst-case time complexity of insertion in a skip list?

- A) O(n)
- B) O(log n)
- C) O(n log n)
- D) O(1)

Answer: A) O(n)

- 9. In a skip list, what is the maximum number of nodes that can be present in a level i, given that there are n total nodes in the skip list?
 - A) n
 - B) n/2
 - C) n/log n
 - D) log n

Answer: B) n/2

- 10. Which of the following is a disadvantage of using skip lists over hash tables?
 - A) Lower space complexity
 - B) Higher time complexity
 - C) Lack of support for efficient range queries
 - D) None of the above

Answer: C) Lack of support for efficient range queries