

# 3 Lecture - CS301

## Important Mcqs

- In a linked list, each node contains:**
  - A value and a pointer to the previous node
  - A value and a pointer to the next node
  - A key and a value
  - A key and a pointer to the next node**Answer: b**
- The first node in a linked list is called the:**
  - Head
  - Tail
  - Root
  - Leaf**Answer: a**
- In computer memory, each node in a linked list is typically represented as:**
  - A block of memory that contains the value and a pointer to the previous node
  - A block of memory that contains the value and a pointer to the next node
  - A hash table that contains the key and the value
  - An array that contains the key and a pointer to the next node**Answer: b**
- What is the time complexity of inserting a node at the beginning of a linked list?**
  - $O(1)$
  - $O(n)$
  - $O(\log n)$
  - $O(n \log n)$**Answer: a**
- What is the time complexity of inserting a node at the end of a linked list?**
  - $O(1)$
  - $O(n)$
  - $O(\log n)$
  - $O(n \log n)$**Answer: b**
- Deleting a node from a linked list requires updating the:**
  - Previous node's pointer to the next node
  - Next node's pointer to the previous node
  - Current node's value to NULL
  - None of the above**Answer: a**
- Traversing a linked list means:**
  - Deleting a node from the list

- b. Inserting a node into the list
- c. Moving through the list from the head to the tail
- d. Sorting the list in ascending order

Answer: c

8. Which of the following is a disadvantage of linked lists compared to arrays?

- a. Linked lists allow for efficient insertion and deletion of nodes
- b. Linked lists use memory flexibly
- c. Linked lists can grow dynamically
- d. Linked lists have slow access times for specific nodes

Answer: d

9. Which of the following operations can be performed in constant time on a linked list?

- a. Finding the maximum value in the list
- b. Inserting a node at the end of the list
- c. Removing the head node from the list
- d. Sorting the list in descending order

Answer: c

10. What is the space complexity of a linked list?

- a.  $O(n)$
- b.  $O(\log n)$
- c.  $O(1)$
- d.  $O(n \log n)$

Answer: a