1. A linear collection of data elements where the linear node is given by means of pointer is called?

a) Linked list

b) Node list

c) Primitive list

d) Unordered list

2. Consider an implementation of unsorted singly linked list. Suppose it has its representation with a head pointer only. Given the representation, which of the following operation can be implemented in O(1) time?

i) Insertion at the front of the linked list

ii) Insertion at the end of the linked list

iii) Deletion of the front node of the linked list

iv) Deletion of the last node of the linked list

a) I and II

b) I and III

c) I, II and III

d) I, II and IV

3. In linked list each node contains a minimum of two fields. One field is data field to store the data second field is?

a) Pointer to character

b) Pointer to integer

c) Pointer to node

d) Node

4. What would be the asymptotic time complexity to add a node at the end of singly linked list, if the pointer is initially pointing to the head of the list?

a) O(1)

b) O(n)

c) θ(n)

d) θ(1)

5. What would be the asymptotic time complexity to insert an element at the front of the linked list (head is known)?

a) O(1)

b) O(n)

c) O(n2)

d) O(n3)

Answer: a

Explanation: To add an element at the front of the linked list, we will create a new node which holds the data to be added to the linked list and pointer which points to head position in the linked list. The entire thing happens within O (1) time. Thus the asymptotic time complexity is O (1).

6. What would be the asymptotic time complexity to find an element in the linked list?

a) O(1)

b) O(n)

c) O(n2)

d) O(n4)

Answer: b

Explanation: If the required element is in the last position, we need to traverse the entire linked list. This will take O (n) time to search the element.

7. What would be the asymptotic time complexity to insert an element at the second position in the linked list?

a) O(1)

b) O(n)

c) O(n2)

d) O(n3)

8. The concatenation of two lists can be performed in O(1) time. Which of the following variation of the linked list can be used?

a) Singly linked list

b) Doubly linked list

c) Circular doubly linked list

d) Array implementation of list

9. Consider the following definition in c programming language.

```
struct node
{
        int data;
        struct node * next;
}
typedef struct node NODE;
NODE *ptr;
```

Which of the following c code is used to create new node?

a) ptr = (NODE*)malloc(sizeof(NODE));

b) ptr = (NODE*)malloc(NODE);

c) ptr = (NODE*)malloc(sizeof(NODE*));

d) ptr = (NODE)malloc(sizeof(NODE));