Rajalakshmi Engineering College

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NeoColab_REC_CS23231_DATA STRUCTURES

REC_DS using C_Week 1_MCQ

Attempt : 1
Total Mark : 10
Marks Obtained : 10

Section 1 : MCQ

1. The following function reverse() is supposed to reverse a singly linked list. There is one line missing at the end of the function.

What should be added in place of "/*ADD A STATEMENT HERE*/", so that the function correctly reverses a linked list?

```
struct node {
   int data;
   struct node* next;
};
static void reverse(struct node** head_ref) {
   struct node* prev   = NULL;
   struct node* current = *head_ref;
   struct node* next;
   while (current != NULL) {
      next  = current->next;
```

```
        current->next = prev;
        prev = current;
        current = next;
    }
    /*ADD A STATEMENT HERE*/
}
```

Answer

*head_ref = prev;

Status : Correct **Marks : 1/1**

2. In a singly linked list, what is the role of the "tail" node?

Answer

It stores the last element of the list

Status : Correct **Marks : 1/1**

3. Given the linked list: 5 -> 10 -> 15 -> 20 -> 25 -> NULL. What will be the output of traversing the list and printing each node's data?

Answer

5 10 15 20 25

Status : Correct **Marks : 1/1**

4. Consider an implementation of an unsorted singly linked list. Suppose it has its representation with a head pointer only. Given the representation, which of the following operations 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

Answer

I and III

Status : Correct ***Marks : 1/1***

5. The following function takes a singly linked list of integers as a parameter and rearranges the elements of the lists.

The function is called with the list containing the integers 1, 2, 3, 4, 5, 6, 7 in the given order. What will be the contents of the list after the function completes execution?

```
struct node {
   int value;
   struct node* next;
};

void rearrange (struct node* list) {
   struct node *p,q;
   int temp;
   if (! List || ! list->next) return;
   p=list; q=list->next;
   while(q) {
      temp=p->value; p->value=q->value;
      q->value=temp;p=q->next;
      q=p?p->next:0;
   }
}
```

Answer

2, 1, 4, 3, 6, 5, 7

Status : Correct ***Marks : 1/1***

6. Given a pointer to a node X in a singly linked list. If only one point is given and a pointer to the head node is not given, can we delete node X from the given linked list?

Answer

Possible if X is not last node.

Status : Correct ***Marks : 1/1***

7. Which of the following statements is used to create a new node in a singly linked list?

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

Answer

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

Status : Correct ***Marks : 1/1***

8. Consider the singly linked list: 15 -> 16 -> 6 -> 7 -> 17. You need to delete all nodes from the list which are prime.

What will be the final linked list after the deletion?

Answer

15 -> 16 -> 6

Status : Correct ***Marks : 1/1***

9. Linked lists are not suitable for the implementation of?

Answer

Binary search

Status : Correct ***Marks : 1/1***

10. Consider the singly linked list: 13 -> 4 -> 16 -> 9 -> 22 -> 45 -> 5 -> 16 -> 6, and an integer K = 10, you need to delete all nodes from the list that are less than the given integer K.

What will be the final linked list after the deletion?

Answer

13 -> 16 -> 22 -> 45 -> 16

Status : Correct ***Marks : 1/1***