

Name: IIT Kanpur  
ESC101 Fundam. of Comp.Roll No:   
e.g. 170001Dept.:   
e.g. CHESect.:   
e.g. A4Minor Quiz 8A  
Date: April 3, 2018**Problem 1 (Twist the list!: 10 marks).** Give your answers in the space provided only.

1. In the space given, write down the output of the program given below.

```

1 #include<stdio.h>
2 #include<stdlib.h>
3
4 struct node{ int data; struct node* next; };
5
6 void Query(struct node *head){
7     struct node *slow_ptr = head;
8     struct node *fast_ptr = head;
9
10    if (head!=NULL){
11        while (fast_ptr != NULL && fast_ptr
12->next != NULL){
13            fast_ptr = fast_ptr->next->next;
14            slow_ptr = slow_ptr->next;}
15    printf("Query returns %d\n\n",
16slow_ptr->data); } }
17
18 void push(struct node** head_ref, int
19new_data){
20    struct node* new_node =
21    (struct node*) malloc(sizeof(struct
22node));
23
24    new_node->data = new_data;
25    new_node->next = (*head_ref);
26    (*head_ref) = new_node; }
27
28 void printList(struct node *ptr){
29    while (ptr != NULL)
30    {
31        printf("%d->", ptr->data);
32        ptr = ptr->next;
33    }
34    printf("NULL\n"); }
35
36 void main(){
37    struct node* head = NULL;
38    int i;
39
40    for (i=5; i>0; i--){
41        push(&head, i*i);
42        printList(head);
43        Query(head); } }
```

```

1 25->NULL
2 Query returns 25
3
4 16->25->NULL
5 Query returns 25
6
7 9->16->25->NULL
8 Query returns 16
9
10 4->9->16->25->NULL
11 Query returns 16
12
13 1->4->9->16->25->NULL
14 Query returns 9
```