Roll No. | | | | | | | |

Paper Code: TCS 301

Mid Semester Examination 2017

B.Tech(CSE) III *Semester*

Data Structure using 'C' language.

Time: 1:30 Hours

MM: 50

Note:

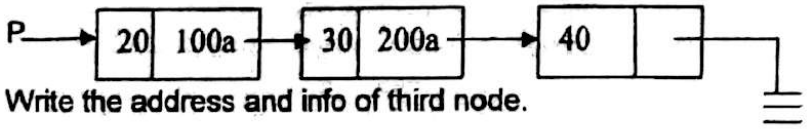
(i) This question paper contains two sections.

(ii) Both sections are compulsory.

Section A

Attempt all questions. Each question carry one mark

Q1. (1X5=5 Marks)

a) 

Write the address and info of third node.

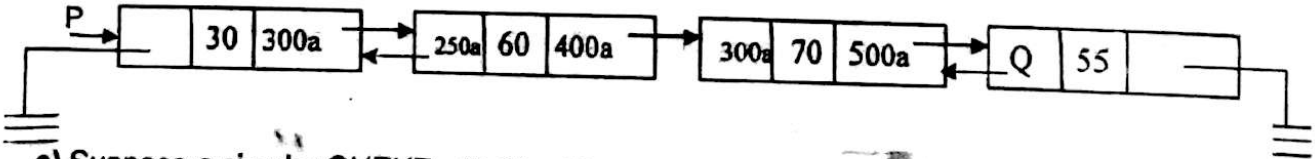
b) What will be output of following code?

```
void main()
 {
  int x=4, *p, *q ,y=5, z;
   p = &x;
   q =&y;
   z = *p * 3;
   y  = *p   *  *q;
  *p = y*2;
   printf("%d %d %d", x,y, z);
 }
```

c) Write the name of the data structure with help of following code

```
if(R! = -1)
{ R=R-1;
 X=Q[R];
printf("%d",X);
}
```

d) What is the value of P and Q in following linked list



e) Suppose a circular QUEUE with N = 10 memory cells and Front and rear are Initialized with -1 when QUEUE was empty. Find the number of elements in QUEUE if

(1) Front = 3, Rear =5.

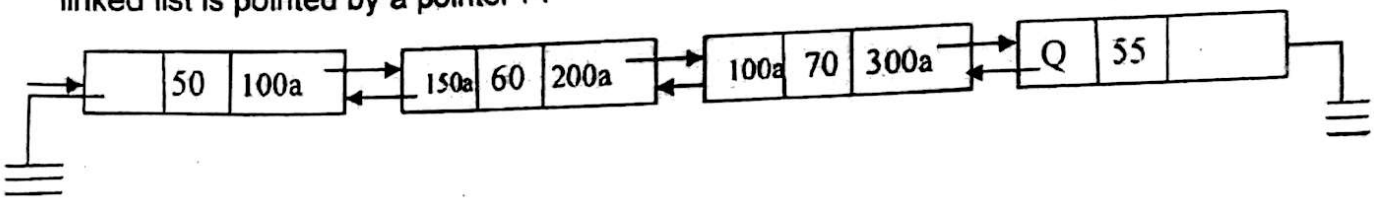
(2) Front = 3, Rear = 9 and then one element is inserted and two are deleted.

(3X5=15 Marks)

Attempt any Five parts.

Q2.

a)Write code to display following linked list from both the sides, first node of the linked list is pointed by a pointer P.



b) Write a C function to create a singly linked list by inserting nodes at right side and then print alternative nodes of the linked list.

c) Create a dynamic array and store N elements in it.

d) Write limitation of simple queue. How it is overcome?

e) Complete the following code for push operation in a data structure

```
nodetype *fun(nodetype *x)
 { ……
   nodetype *p=NULL;

    p=…..malloc();
    ……

 if(p!=NULL)
   {
    …..
     ……

    }

    return x;
 }
```

f) **What is the output of the following program?**

```
#include<stdio.h>
void fun(int*, int*);
int main()
{
int i=6, j=4;
fun(&i, &j);
printf("%d, %d", i, j);
return 0;
}
  void fun(int *i, int *j)
  {
  *i = *i * *i;
  *j = *j * *j;
  }
```

Section – B

Each question contains three parts a, b & c. Attempt any two parts of choice from each question.

Q3. (5X 2 = 10 Marks)

a. Assume that we have a singly linked list, Write a C function to count nodes having even information.

b. Assume that we have two singly linked lists having addresses P1 and P2. Write a C function to add second linked list after first linked list.

c. Write a C function to store N elements in an array A. Then print third non-repeating element from it.

Q4. (5X 2 = 10 Marks)

a. Write a C function to insert a Node in singly linked list and then print a Node with maximum information.

b. Assume that we already have a linked list, input a number and search it in the linked list if found print "Found" otherwise print "Not Found".

c. Assume that we already have a doubly linked list, write a C function to print alternate nodes from both the sides i.e one form left other from right and so on without any overlapping.

Q5. (5X 2 = 10 Marks)

a. Assume that we already have a doubly linked list, Write a C function to input a key search it, if found delete that node otherwise print "Not Found".

b. Write C program to create a doubly linked list by inserting nodes such that linked list remains in ascending order.

c. Assume that we already have a singly linked list, Write a 'c' function to delete last node from that linked list.