

Question  
Nos.Q2) b) Circular Linked List.(1) Insertion at the Start.Step 1: Set  $ptr = Start$ Step 2: If  $ptr = NULL$  $ptr = \text{New node}$  ~~$\text{New node} = Start$~~  $\text{New node} \rightarrow \text{next} = Start$ 

exit.

Step 3: If  $Start \neq NULL$ .

Explanation.

where we point the head to the new node. & then point the new nodes next ptr to the first node.

~~this way~~

Q2) b) Circular Linked List.

(i) Insertion at the start.

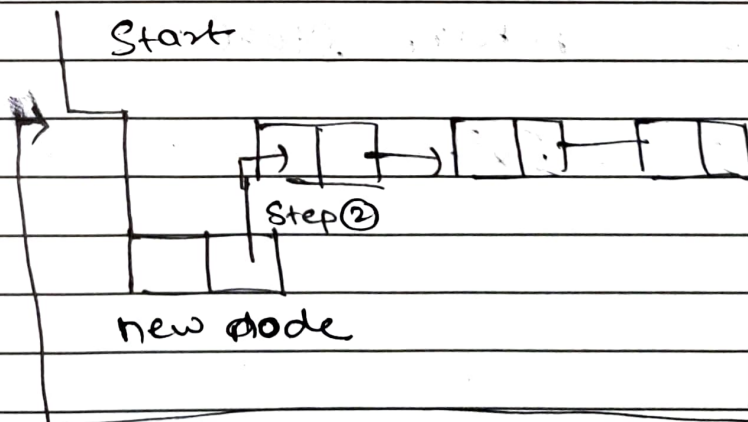
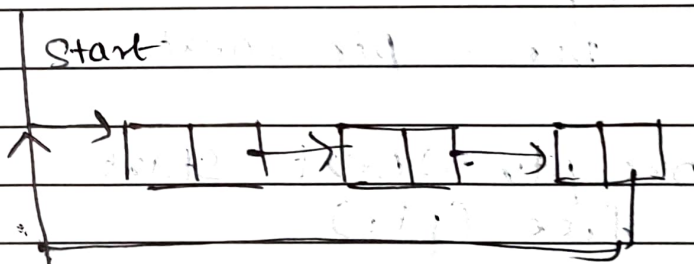
Step 1 : Set  $ptr = \text{new Start (head)}$   
Input  $n = \text{data}$ .

Step 2 : Set  $\text{newnode} \rightarrow \text{data} = n$ .  
 $\text{new node} \rightarrow \text{next} = \text{start}$   
 $ptr = \text{new node}$ .

Step 3 : ~~exit~~ . return  $\text{start}$

Step 4 : ~~exit~~

Example.



2.) Deletion of last node.

Step ① : Set  $ptr = \text{head}$  Start  
 $pre\_ptr = ptr$   
 Input  $n = \text{data}$ .

Step ② : If  $ptr = \text{NULL}$   
 print ("List is Empty").  
 Exit. Step 6.

Step ③ : Else ~~if~~  $ptr$   
~~do while~~ ( $ptr \neq \text{start}$ )  
 do while ( $ptr \neq \text{start}$ )  
 $pre\_ptr = ptr$   
 $ptr = ptr \rightarrow \text{next}$

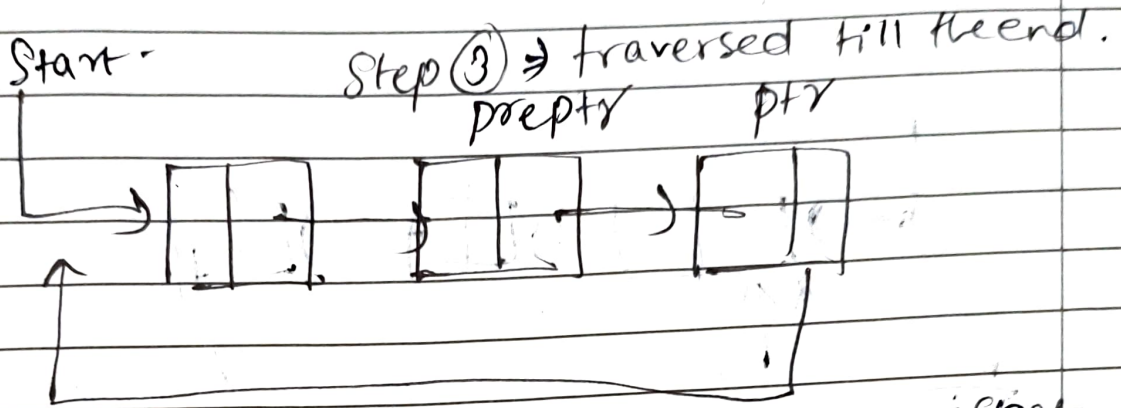
Step ④ :  $pre\_ptr \rightarrow \text{next} = \text{start}$   
 $\text{free}(ptr)$

Step ⑤ : return  $\text{start}$ .

Step ⑥ : Exit.



Example.



we used `do while (ptr != null)`

because there are two instances when  $ptr = \text{Start}$  once in the Start & once in the end. & what `do while` does is it atleast runs once so we pass the first instance when we got  $ptr = \text{Start}$ .  
next instance when  $ptr = \text{Start}$  is at the end of the list. This when the `do while` loop breaks.

we converge the predecessor to Start & free the ptr which is at the end of the node.  
removing the last node from the list.