output:

Enter a valid parenthesized infix expression: A*B+C*D-E
Postfix Expression : AB*CD*+E-

Enter a valid parenthesized infix expression: (A+(B*C-(D/E^F)*G)*H)
Postfix Expression : ABC* DEF^/G*-H*+

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Wap to stimulate the working of a queue of integers using an array. Provide the following operations: Insert, delete, Display. Program should print appropriate messages for queue empty and overflow conditions.

write a program to perform insertion, deletion, display,

pseudocode:

1. Declare an array of size n, x
2. Define N globally. front = rear = -1.
3. To insert
   check if rear = N-1 then print queue overflow
   else if front==-1 and rear=-1, set front and rear to 0 and queue[rear]=x
   else rear++ and queue[rear]=x.
4. To delete
   check if front=-1 and rear=-1 then print queue is empty
   else if front=rear set front=rear=-1
   else increment front.
5. To display.
   check if front=rear=-1 then print queue is empty
   else run a for loop to print the elements of queue
   for (int i=front; i<=rear; i++)
   print queue[i]
6. End.

Photographer

program:

```
#include <stdio.h>
#define N 5
int front = -1;
int rear = -1;
int queue[N];
void enque(int x){
    if (rear==N-1){
        printf("queue overflow\n");
    }
    else if(front==-1 && rear==-1){
        front=rear=0;
        queue[rear]=x;
    }
    else {
        rear++;
        queue[rear]=x;
    }
}
void deque() {
    if (front==-1 && rear==-1) {
        printf("Queue is empty\n");
    }
    else if (front==rear) {
        front=rear=-1;
    }
    else {
        printf("deleted element is %d", queue[front]);
        front++;
    }
}
Void display(){
    if (front==-1 && rear==-1) {
        printf("queue is empty \n");
    }
    else {
        printf("elements of Queue are: \n");
```

```
        for (int i= front ; i<=rear ; i++){
            printf("%d\n", queue[i]);
        }
        }
    }
int main( ){
    int ch, x ;
    int queue[N] ;
    do {
    printf("\n Queue Operations \n1. Enque(insert)  2. Deque (Delete)
    3. Display & Exit \n");
    printf("Enter your chorce (1-4): ");
    scanf("%d", &ch);
    switch(ch) {
        case 1 :
            printf("Enter element to insert: ");
            scanf("%d", &x);
            enque(x);
            break;
        case 2 :
            deque();
            break;
        case 3 :
            display();
            break;
        case 4 :
            printf("Exit...\n");
            break;
        default :
            printf("Choice out of range! \n");
        }
    } while (ch!=4) ;
    return 0;
}
```

Output:

Queue Operations
1. Enque (insert) 2. Deque (delete) 3. Display 4. Exit
Enter your choice (1-4): 2
Queue is empty

Queue Operations
1. Enque (insert) 2. Deque (delete) 3. Display 4. Exit
Enter your choice (1-4): 3
Queue is empty

Queue Operations
1. Enque (insert) 2. Deque (delete) 3. Display 4. Exit
Enter your choice (1-4): 1
Enter element to insert: 1

Queue Operations
1. Enque (insert) 2. Deque (delete) 3. Display 4. Exit
Enter your choice (1-4): 1
Enter element to insert: 2

Queue Operations
1. Enque (insert) 2. Deque (delete) 3. Display 4. Exit
Enter your choice (1-4): 1
Enter element to insert: 3

Queue Operations
1. Enque (insert) 2. Deque (delete) 3. Display 4. Exit
Enter your choice (1-4): 1
Enter element to insert: 4

Queue Operations
1. Enque (insert) 2. Deque (delete) 3. Display 4. Exit
Enter your choice (1-4): 12
Choice out of range!

Queue Operations
1. Enque (insert) 2. Deque (delete) 3. Display 4. Exit
Enter your choice (1-4): 1
Enter element to insert: 5

Queue operations
1. Enque (insert) 2. Deque (delete) 3. Display 4. Exit
Enter your choice (1-4): 2
Enter element to insert: 6

Queue overflow

Queue Operations
1. Enque (insert) 2. Deque (delete) 3. Display 4. Exit
Enter your choice (1-4): 2
deleted element is 1

Queue operations
1. Enque(insert) 2. Deque(delete) 3. Display 4. Exit
Enter your choice (1-4): 2
deleted element is 2.

Queue Operations
1. Enque (insert) 2. Deque (delete) 3. Display 4. Exit
Enter your choice (1-4): 3
Elements of queue are :
3
4
5

Queue operations
1. Enque (insert) 2. Deque (delete) 3. Display 4. Exit
Enter your choice (1-4) : 4
Exit...

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