

```

1: #include <stdio.h>
2: #include <string.h>
3: #include <stdlib.h>
4: #define MAX 5
5:
6: int front = 0, rear = -1, count = 0;
7: char cqueue[MAX], element;
8:
9: void insert();
10: void delete();
11: void display();
12:
13: int main() {
14:     int choice;
15:     while (1) {
16:         printf("---- operations on CIRCULAR QUEUE (max elements = 5) ---");
17:         printf("\n--- press 1 => Insert an element   2 => Delete an element   3 => Display queue   4 => Exit---");
18:         printf("\n Enter your choice: ");
19:         scanf("%d", &choice);
20:
21:         switch (choice) {
22:             case 1: insert();
23:                     break;
24:             case 2: delete();
25:                     break;
26:             case 3: display();
27:                     break;
28:             case 4: exit(0);
29:             default: printf("Invalid choice! Please try again.\n");
30:         }
31:     }
32:     return 0;
33: }
34:
35: void insert() {
36:     if (count == MAX) {
37:         printf("!!!! CIRCULAR QUEUE is full, element cannot be inserted !!!!\n");
38:         return;
39:     }
40:
41:     rear = (rear + 1) % MAX;
42:     printf("Enter the element to be inserted into the CIRCULAR QUEUE: ");
43:     scanf("%c", &element); // space before %c to skip newline
44:     cqueue[rear] = element;
45:     count++;
46:     printf("Inserted: %c\n", element);
47: }
48:
49: void delete() {
50:     if (count == 0) {
51:         printf("!!!! CIRCULAR QUEUE is empty, no element to delete !!!!\n");
52:         return;
53:     }
54:
55:     element = cqueue[front];
56:     front = (front + 1) % MAX;
57:     count--;
58:     printf("The element deleted is: %c\n", element);
59: }
60:
61: void display() {
62:     int i;
63:     if (count == 0) {
64:         printf("!!!! CIRCULAR QUEUE is empty, no element to display !!!!\n");
65:         return;
66:     }
67:
68:     printf("CIRCULAR QUEUE contents are: ");
69:     for (i = 0; i < count; i++) {
70:         int index = (front + i) % MAX;
71:         printf("%c ", cqueue[index]);
72:     }
73:     printf("\n");
74: }
75:

```