

# Rajalakshmi Engineering College

Name: jaiwanth a  
Email: 240701206@rajalakshmi.edu.in  
Roll no: 240701206  
Phone: 7358844460  
Branch: REC  
Department: I CSE AH  
Batch: 2028  
Degree: B.E - CSE

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## NeoColab\_REC\_CS23231\_DATA STRUCTURES

### REC\_DS using C\_Week 4\_MCQ\_Updated

Attempt : 1  
Total Mark : 20  
Marks Obtained : 17

#### Section 1 : MCQ

1. What will be the output of the following code?

```
#include <stdio.h>
#define MAX_SIZE 5
typedef struct {
    int arr[MAX_SIZE];
    int front;
    int rear;
    int size;
} Queue;
```

```
void enqueue(Queue* queue, int data) {
    if (queue->size == MAX_SIZE) {
        return;
    }
    queue->rear = (queue->rear + 1) % MAX_SIZE;
```

```

    queue->arr[queue->rear] = data;
    queue->size++;
}
int dequeue(Queue* queue) {
    if (queue->size == 0) {
        return -1;
    }
    int data = queue->arr[queue->front];
    queue->front = (queue->front + 1) % MAX_SIZE;
    queue->size--;
    return data;
}
int main() {
    Queue queue;
    queue.front = 0;
    queue.rear = -1;
    queue.size = 0;
    enqueue(&queue, 1);
    enqueue(&queue, 2);
    enqueue(&queue, 3);
    printf("%d ", dequeue(&queue));
    printf("%d ", dequeue(&queue));
    enqueue(&queue, 4);
    enqueue(&queue, 5);
    printf("%d ", dequeue(&queue));
    printf("%d ", dequeue(&queue));
    return 0;
}

```

**Answer**

1 2 3 4

**Status :** Correct

**Marks :** 1/1

2. What is the functionality of the following piece of code?

```

public void function(Object item)
{
    Node temp=new Node(item,trail);

```

```
if(isEmpty())
{
    head.setNext(temp);
    temp.setNext(trail);
}
else
{
    Node cur=head.getNext();
    while(cur.getNext()!=trail)
    {
        cur=cur.getNext();
    }
    cur.setNext(temp);
}
size++;
}
```

**Answer**

Insert at the rear end of the dequeue

**Status :** Correct

**Marks :** 1/1

3. Which operations are performed when deleting an element from an array-based queue?

**Answer**

Dequeue

**Status :** Correct

**Marks :** 1/1

4. Which of the following properties is associated with a queue?

**Answer**

First In First Out

**Status :** Correct

**Marks :** 1/1

5. The essential condition that is checked before insertion in a queue is?

**Answer**

Overflow

**Status :** Correct

**Marks :** 1/1

6. In linked list implementation of a queue, the important condition for a queue to be empty is?

**Answer**

FRONT is null

**Status :** Correct

**Marks :** 1/1

7. In what order will they be removed If the elements "A", "B", "C" and "D" are placed in a queue and are deleted one at a time

**Answer**

ABCD

**Status :** Correct

**Marks :** 1/1

8. What will the output of the following code?

```
#include <stdio.h>
#include <stdlib.h>
typedef struct {
    int* arr;
    int front;
    int rear;
    int size;
} Queue;
Queue* createQueue() {
    Queue* queue = (Queue*)malloc(sizeof(Queue));
    queue->arr = (int*)malloc(5 * sizeof(int));
    queue->front = 0;
    queue->rear = -1;
    queue->size = 0;
```

```
    return queue;
}
int main() {
    Queue* queue = createQueue();
    printf("%d", queue->size);
    return 0;
}
```

**Answer**

0

**Status : Correct**

**Marks : 1/1**

9. What does the front pointer in a linked list implementation of a queue contain?

**Answer**

The address of the first element

**Status : Correct**

**Marks : 1/1**

10. Front and rear pointers are tracked in the linked list implementation of a queue. Which of these pointers will change during an insertion into the EMPTY queue?

**Answer**

Both front and rear pointer

**Status : Correct**

**Marks : 1/1**

11. When new data has to be inserted into a stack or queue, but there is no available space. This is known as

**Answer**

overflow

**Status : Correct**

**Marks : 1/1**

12. In a linked list implementation of a queue, front and rear pointers are tracked. Which of these pointers will change during an insertion into a non-empty queue?

**Answer**

Only rear pointer

**Status :** Correct

**Marks :** 1/1

13. A normal queue, if implemented using an array of size MAX\_SIZE, gets full when

**Answer**

Rear = MAX\_SIZE - 1

**Status :** Correct

**Marks :** 1/1

14. The process of accessing data stored in a serial access memory is similar to manipulating data on a

**Answer**

Stack

**Status :** Wrong

**Marks :** 0/1

15. After performing this set of operations, what does the final list look to contain?

```
InsertFront(10);
InsertFront(20);
InsertRear(30);
DeleteFront();
InsertRear(40);
InsertRear(10);
DeleteRear();
InsertRear(15);
display();
```

**Answer**

10 30 40 15

**Status :** Correct

**Marks :** 1/1

16. Which of the following can be used to delete an element from the front end of the queue?

**Answer**

```
public Object deleteFront() throws emptyDEQException{if(isEmpty())throw new  
emptyDEQException("Empty");else{Node temp = head.getNext();Node cur =  
temp.getNext();Object e = temp.getEle();head.setNext(temp);size--;return e;}}
```

**Status :** Wrong

**Marks :** 0/1

17. What are the applications of dequeue?

**Answer**

All the mentioned options

**Status :** Correct

**Marks :** 1/1

18. Which one of the following is an application of Queue Data Structure?

**Answer**

All of the mentioned options

**Status :** Correct

**Marks :** 1/1

19. What will be the output of the following code?

```
#include <stdio.h>  
#include <stdlib.h>  
#define MAX_SIZE 5  
typedef struct {  
    int* arr;  
    int front;
```

```

    int rear;
    int size;
} Queue;
Queue* createQueue() {
    Queue* queue = (Queue*)malloc(sizeof(Queue));
    queue->arr = (int*)malloc(MAX_SIZE * sizeof(int));
    queue->front = -1;
    queue->rear = -1;
    queue->size = 0;
    return queue;
}
int isEmpty(Queue* queue) {
    return (queue->size == 0);
}
int main() {
    Queue* queue = createQueue();
    printf("Is the queue empty? %d", isEmpty(queue));
    return 0;
}

```

**Answer**

Is the queue empty? 1

**Status : Correct**

**Marks : 1/1**

20. Insertion and deletion operation in the queue is known as

**Answer**

Push and Pop

**Status : Wrong**

**Marks : 0/1**