

# Rajalakshmi Engineering College

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## NeoColab\_REC\_CS23231\_DATA STRUCTURES

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

Attempt : 1  
Total Mark : 20  
Marks Obtained : 15

#### Section 1 : MCQ

1. 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

2. 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

3. 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

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

**Answer**

FRONT==REAR-1

Status : Wrong

Marks : 0/1

5. 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

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

Answer

public Object deleteFront() throws emptyDequeException{if(isEmpty())throw new

```
emptyDEQException("Empty");else{Node temp = head.getNext();Node cur = temp.getNext();Object e = temp.getEle();head.setNext(cur);size--;return e;}}
```

**Status :** Correct

**Marks :** 1/1

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

**Answer**

Push and Pop

**Status :** Wrong

**Marks :** 0/1

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

**Answer**

All of the mentioned options

**Status :** Correct

**Marks :** 1/1

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

**Answer**

First In First Out

**Status :** Correct

**Marks :** 1/1

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

**Answer**

Array

**Status :** Wrong

**Marks :** 0/1

11. 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

12. 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**

20 30 40 15

**Status :** Wrong

**Marks :** 0/1

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

**Answer**

Dequeue

**Status :** Correct

**Marks :** 1/1

14. 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

15. 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

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

**Answer**

Overflow

**Status :** Correct

**Marks :** 1/1

17. 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**

Fetch the element at the front end of the dequeue

**Status : Wrong**

**Marks : 0/1**

18. 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

19. 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

20. What are the applications of dequeue?

**Answer**

All the mentioned options

**Status :** Correct

**Marks :** 1/1