# Rajalakshmi Engineering College

Name: Jenell S G
Email: 240701212@rajalakshmi.edu.in
Roll no: 2116240701212
Phone: 7418493255
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 : 18

### Section 1 : MCQ

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

***Answer***

Dequeue

***Status :*** Correct ***Marks : 1/1***

2. 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***

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

***Answer***

Enqueue and Dequeue

***Status :*** Correct ***Marks : 1/1***

4. 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***

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 one of the following is an application of Queue Data Structure?

***Answer***

All of the mentioned options

***Status :*** Correct **Marks : 1/1**

7. 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**

8. 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***

9. 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***

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

***Answer***

First In First Out

***Status :*** Correct ***Marks : 1/1***

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. 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***

13. 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***

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. 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***

17. What are the applications of dequeue?

***Answer***

All the mentioned options

***Status :*** Correct **Marks : 1/1**

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

***Answer***

Overflow

***Status :*** Correct **Marks : 1/1**

19. 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***

20. 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;Object e = temp.getEle();head.setNext(cur);size--;return e;}}

***Status :*** Wrong ***Marks : 0/1***