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NeoColab_REC_CS23231_DATA STRUCTURES

REC_DS using C_Week 4_MCQ_Updated

Attempt : 3
Total Mark : 20
Marks Obtained : 11

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

Answer

Front value

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

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

Answer

Last In First Out

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

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. 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***

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

Answer

Queue

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

7. 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

3 2 1 4

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

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

1

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

9. 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 rear end of the dequeue

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

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

Answer

Enqueue and Dequeue

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

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

Answer

All of the mentioned options

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

12. 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

Only rear pointer

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

13. 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***

14. 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***

15. 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(cur);size--;return e;}}

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

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

Answer

Dequeue

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

17. What are the applications of dequeue?

Answer

All the mentioned options

Status : Correct *Marks : 1/1*

18. A normal queue, if implemented using an array of size MAX_SIZE, gets full when

Answer

Front = rear + 1

Status : Wrong *Marks : 0/1*

19. 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*

20. 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

DCBA

Status : Wrong *Marks : 0/1*