

**Class Test (1) Examination: Fall-2024**

**Course Code: CIS 122 (Batch: 19)**

**Course Title: Data Structure**

**Date: 12/09/2024**

**Time: 30 Minutes**

**Total Marks: 15**

---

1. Briefly explain the primary goals of data structures. Given an array, `char B[8][13]` with base value 220. Now, find the address of `A[5][10]` with the help of row-major order. [4+4]
2. Suppose an array `M` contains 10 elements. Draw a flowchart to insert the value 200 at the 6th position of array `M` (using an appropriate array structure). [7]

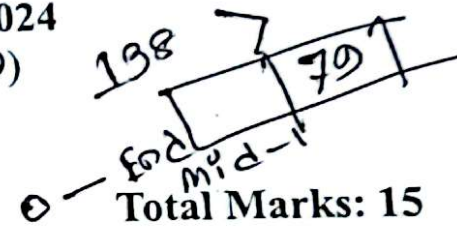
Class Test (2) Examination: Fall-2024

Course Code: CIS 122 (Batch: 19)

Course Title: Data Structure

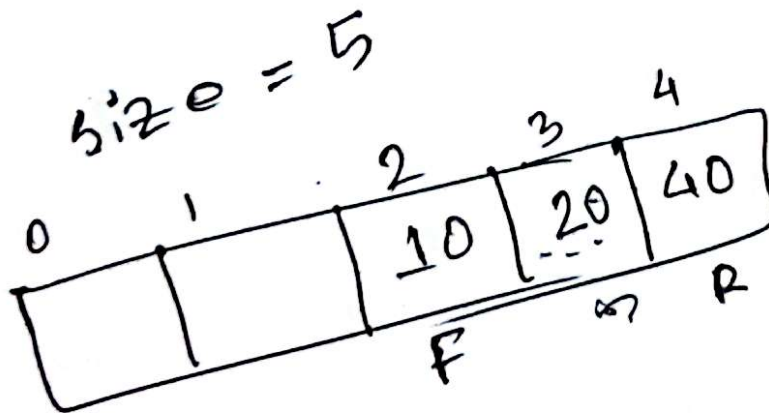
Date: 31/10/2024

Time: 30 Minutes



Total Marks: 15

1. Define a circular queue. Consider the sorted array  $A[13] = \{150, 138, 112, 108, 94, 84, 79, 57, 48, 35, 21, 19, 10\}$ . Now find out the number  $x=138$  from the sorted array utilizing binary search approach. Also compare the results with linear search. [2+6]
2. A circular queue has a size of 5 and has 3 elements 10, 20 and 40 where  $F=2$  and  $R=4$ . After inserting 50 and 60, what is the value of  $F$  and  $R$ . Trying to insert 30 at this stage what happens? Delete 2 elements from the queue and insert 70, 80 & 90. Show the sequence of steps with necessary diagrams with the value of  $F$  &  $R$ . [7]



$R=3$   
 $F=4$

Class Test (3) Examination: Fall-2024

Course Code: CIS 122 (Batch: 19)

Course Title: Data Structure

Date: 28/11/2024

Time: 30 Minutes

Total Marks: 15

1. Write a note on a header linked list. Write the declaration of a doubly linked list in C. [3+3]
2. Write a pseudocode which is performed to traverse operation. [Assume that the linked list contains 7 integer values] [3]
3. Write a pseudocode to perform a split operation based on the odd and even positions of the nodes. [Assume that the linked list contains 12 integer values] [6]

