

1. Marks Score

Theory: Explain array with example and types of array.

Explain Static and dynamic allocation of memory.

Program Hints: Enter Min marks 0 then display lowest score.

Max score not more than 100.

If student is absent don't consider their marks. (If enter)

2. Matrix

Theory: Define matrix and application of it.

Explain square matrix, diagonal matrix and sparse matrix, fast transpose of matrix.

Define Time complexity of matrix multiplication.

Program Hints: Explain multiplication of matrix by using code.

3. Cricket and Badminton

Theory: Explain Union, Intersection and Difference of set with example.

Explain cardinality of set with example.

Program Hints: students enter by roll number, so it is not duplicate.

4. DLL

Theory: Define doubly link list with example.

Define doubly circular linked list with example.

Can we implement same program using singly link list, explain how??

Program Hints: Check seat booking, for already booked seat.

Check for book a seat when all seats are booked.

5. SLL

Theory: Differentiate SLL and DLL.

Explain applications of Link list.

Define linked and sequential organization with examples.

Program Hints: check insert operation for all negative number by keeping positive list empty and vice versa.

Check display operation if both list are empty.

6. Stack

Theory: Explain stack as an ADT.

State an application of stack by using example.

Explain expression conversion rules.

Explain priority of operators.

Explain ISP and ICP.

Explain constraint for balance expression.

Program Hints: solve example on paper and cross check with program by executing it.

Check conversion with invalid expression also. (Not allow, display msg enter valid expression.)

7. Queue

Theory: Define queue operations.

Explain queue with example and application.

Explain queue as an ADT.

Difference bet queue and circular queue.

Explain front and rear position by example with both queues.

Program Hints: Show queue full and queue empty conditions.

Display operation must work after insert and delete Job.

8. Searching and Sorting

Theory: Explain time complexities, how it get calculate.

List out and explain various sorting methods.

What is In place sorting (algorithm)

Explain divide and conquer.

How pivot element get selected.

Explain best worst and avg case with example.

Program Hints: Show working of sorting technique with example by proper example on paper. (Sort nos. till completely list get sort)

Check no. of passes required. If already sorted list is input.