

Giri's Tech Hub, Pune.

Core Java Machine Test

Batch: April/May/June-25

Date : 05/10/2025

Time : 08 to 11 Am.

Instructions:

1. Solve any 9 questions.
2. Input should be from user.
3. Indentation and comments mandatory.
4. Each program 1 marks & all comments 1 marks.

Q1. Write a java program to print this pattern.

```
      1
     A B
    2   3
   B     C
  4 5 6 7 8
```

Q2. Write a java program to swaps the first two digits with the last two digits, and prints the result.

Input : 12345

Output : 45312

Q3. Write a Java program to display the following series using function recursion :

7 10 15 22 31 42 55 70

Q4. Write a java program to replace all elements in the array that are multiples of 5 with the number 5 itself.

Input: [10, 12, 15, 17, 20]

Output: [5, 12, 5, 17, 5]

Q5. Write a java program to replace each element with its factorial.

Input: arr = [3, 4, 5]

Output: arr = [6, 24, 120]

Q6. Given a sorted array (may contain duplicates), find the first and last index of a given number x using binary search.

Example:

arr = [2, 4, 4, 4, 6, 7, 9], x = 4

Output: First = 1, Last = 3

Q7. You have an array of size n containing numbers from 1 to n, but one number is missing and one number is duplicated. Find both.

Example:

arr = [1, 2, 2, 4]

Output → Missing = 3, Duplicate = 2

Q8. Given an ArrayList of integers, move all even numbers to the front and odd numbers to the back while maintaining their relative order.

Input : List : [5, 2, 8, 7, 3, 6];

Output : [2, 8, 6, 5, 7, 3]

Q9. Create a class Score with field int marks. Store multiple Score objects in a Vector and print the top 3 highest scores.

Input :-

Enter number of scores: 5

Enter marks of 5 students:

85

90

75

95

80

Output :-

Top 3 highest scores:

95

90

85

Q10. Given an array {10, 20, 30, 10, 20}, create a HashMap where each integer is the key and the value is a list of indices where the number occurs.

Example: {10=[0,3], 20=[1,4], 30=[2]}

-----ALL THE BEST-----