

Giri's Tech Hub, Pune.

Core Java Machine Test

Batch: Aug/Sep-25

Date : 16/12/2025

Time : 09 to 12 Pm.

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.

Section – A (Solve Any 3 & Passing For 2 Questions)

Q1. Write a Java program to find the largest and smallest digit of a given number.

Q2. Write a java program to display following series using function recursion :

2 729 4 512 6 343 8 216 10 125 12 64 14 27 16 8 18 1

Q3. Write a java program to print this pattern.

1	0	0	0	1
0	1	0	1	0
0	0	1	0	0
0	1	0	1	0
1	0	0	0	1

Q4. Write a java program to print this pattern.

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

Section – B (Solve Any 3 & Passing For 2 Questions)

Q1. Write a program in java to find out the maximum difference between any two elements such that larger element appears after the smaller number.

Expected Output :

The given array is : 7 9 5 6 13 2

The elements which provide maximum difference is: 5, 13

The Maximum difference between two elements in the array is: 8

Q2. A peak element is greater than or equal to its neighbors. Given an array, find the index of any one peak element using binary search.

Example: Input: arr = [1,3,20,4,1,0] → Output: 2 (20 is a peak).

Q3. Given an array of distinct integers candidates and a target integer target, return a list of all unique combinations of candidates where the chosen numbers sum to target. You may return the combinations in any order.

The same number may be chosen from candidates an unlimited number of times. Two combinations are unique if the frequency of at least one of the chosen numbers is different.

The test cases are generated such that the number of unique combinations that sum up to target is less than 150 combinations for the given input.

Example 1: Input: candidates = [2,3,6,7], target = 7 Explanation: Output: [[2,2,3],[7]]

Q4. Write a java program to take input array from user and perform this operations in array.

Input Array : 5732 8659 2534 9625 7354 1325

Explanation : Store sum of digits at same index.

Output :- 17 28 14 22 19 11

Section – C (Solve Any 3 & Passing For 2 Questions)

Q1. Write a Java program to create a class named Armstrong with the following methods:

1. void setNum(int no) – to accept a number.
2. void checkArm() – to check whether the given number is an Armstrong number or not.

Q2. Write a menu driven program in java to Create a class name as Employee to hold empid, empname , empemail , empcontact and empsalary.

The menu options should be:

1. Add Employee Details.
2. Display All Employee Details.
3. Search Employee By Id then employee is found or not.
4. Update Employee Details By empcontact.
5. Delete Employee Details By empsalary.

Q3. Write a java program using constructor overloading with class name as ArrayCons

ArrayCons (int a [],int value): this function is used for accept array as parameter and pass value and search value in array.

ArrayCons(int a[]): this function will accept array as parameter and find maximum value from array.

Q4. Write a java Program to calculate overtime pay of 5 employees. The overtime pay rate is Rs.50/- (per Hour). Daily shift hour time is only 8 hours.

Note- for a week only 40 hours of working are allowed.

1. Create class Employee with data member ID, Name, total working, salary, overtime Set Information by using a parameterized constructor and create a display Information() method to display all information with salary.
2. Create another class name as OverTime with method setEmployee(Employee emp[]) and void calculateOvertime() to calculate overtime.

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