

Giri's Tech Hub Pvt.Ltd, Pune.
Programming (Machine) Test

Batch: Nov-24/Dec-24/Jan-25

Date: 20/03/2025
Time: 02:00 to 05.00 Am

Instructions:

Total:- 10 Marks

1. Input should be from user.
2. Solve all questions.
3. Indentation and comments mandatory.
4. Each program 1 Marks & comments 0.25 marks.

Q1. Write a java program to check whether number is amicable number or not.

Amicable numbers are two different numbers so related that the sum of the proper divisors of each is equal to the other number. (A proper divisor of a number is a positive factor of that number other than the number itself).

Examples: (220,284)

- Proper divisors of 220: 1, 2, 4, 5, 10, 11, 20, 22, 44, 55, 110
 - Sum = $1 + 2 + 4 + 5 + 10 + 11 + 20 + 22 + 44 + 55 + 110 = 284$
- Proper divisors of 284: 1, 2, 4, 71, 142
 - Sum = $1 + 2 + 4 + 71 + 142 = 220$

Thus, (220, 284) is a pair of amicable numbers.

Q2. Write a java program to print 1 to nth strong number.

Q3. Write a java program to print this pattern.

```
#    1
#
#    2
#
#    3    #    3
#
#    4    #    4
#
#    5    #    5    #    5
#
#    6    #    6    #    6
```

Q4. Write a java program to print this pattern.

```
      A    B    C    D    E    F
      A    B    C    D    E
      A    B    C    D
      A    B    C
      A    B
      A
```

Q5. Write a Java program to count the number of alphabets, vowels, consonants, digits, and special symbols in a character array.

Q6. Write a Java program to find the union and intersection of two arrays.

Explanation:

The union of two arrays includes all unique elements from both arrays.

The intersection of two arrays includes only the elements that are present in both arrays.

Array 1: {1, 3, 4, 5, 7}

Array 2: {2, 3, 5, 6}

Union: {1, 2, 3, 4, 5, 6, 7}

Intersection: {3, 5}

Q7. WAP to Create a class name as StudentPer with a three function void setValue(), void CalPer() and void checkGrades().

```
void setValue(int studid, String name, int marks[ ])
{
// this function can accept the array.
}
void CalPer()
{
//this function can use calculate the percentage in array.
}
void checkGrades()
{
    //this function can use check the grade.
    percentage >= 91% to 100 % : Grade A
        81% to 90% : Grade B
        71% to 80% : Grade C
        61% to 70% : Grade D
        51% to 60% : Grade E
        41% to 50% : Grade F
        10% to 40% : Student is Fail.
}
```

Q8. WAP to Create a class name as Isogram with a two function void setArray(char ch[]) and void checkIsogram().

```
setArray(char ch[])
{
// this function can accept the array.
}
void checkIsogram( ).
{
//this function can use the implement the logic.
//Given a word or phrase, check if it is an isogram or not. An Isogram is a word in which
//no letter occurs more than once.
//Input: Machine          Output: True
//Explanation: "Machine" does not have any character repeating, it is an Isogram
//Input : Geek            Output : False
//Explanation: "Geek" has 'e' as repeating character, it is not an Isogram
}
```

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