## JAVA QUESTIONS

# Programming Questions and Exercises : IF STATEMENT

**1. Write a program to find maximum between two numbers**

**2. Write a program to find maximum between three numbers**

**3. Write a program to check whether a number is negative, positive or zero**

**4. Write a program to check whether a number is divisible by 5 and 11 or not**

**5. Write a program to check whether a number is even or odd**

**6. Write a program to check whether a year is leap year or not**

**7. Write a program to check whether a character is alphabet or not**

**8. Write a program to input any alphabet and check whether it is vowel or consonant**

**9. Write a program to input any character and check whether it is alphabet, digit or special character**

**10. Write a program to check whether a character is uppercase or lowercase alphabet**

**11. Write a program to input week number and print week day**

**12. Write a program to input month number and print month Name**

**13. Write a program to count total number of notes in given amount**

**14. Write a program to input angles of a triangle and check whether triangle is valid or not**

**15. Write a program to input all sides of a triangle and check whether triangle is valid or not**

**16. Write a program to check whether the triangle is equilateral, isosceles or scalene triangle**

**17. Write a program to find all roots of a quadratic equation**

**18. Write a program to calculate profit or loss**

**19. Write a program to input marks of five subjects Physics, Chemistry, Biology, Mathematics and Computer. Calculate percentage and grade according to following:**

- Percentage >= 90% : Grade A
- Percentage >= 80% : Grade B
- Percentage >= 70% : Grade C
- Percentage >= 60% : Grade D
- Percentage >= 40% : Grade E
- Percentage < 40% : Grade F

**20. Write a program to input basic salary of an employee and calculate its Gross salary according to following:**

- Basic Salary <= 10000 : HRA = 20%, DA = 80%
- Basic Salary <= 20000 : HRA = 25%, DA = 90%
- Basic Salary > 20000 : HRA = 30%, DA = 95%

**21. Write a program to input electricity unit charges and calculate total electricity bill according to the given condition:**

- For first 50 units Rs. 0.50/unit
- For next 150 units Rs. 0.75/unit
- For next 250 units Rs. 1.20/unit
- For unit above 250 Rs. 1.50/unit
- An additional surcharge of 20% is added to the bill

22. while purchasing certain items, a discount of 10% is offered if the quantity purchased is more than 100. If quantity and price per item are input through the keyboard, write a program to calculate the total expenses

23. The current year and the year in which the employee joined the organization are entered through the keyboard. If the number of years for which the employee has served the organization is greater than 3 then a bonus of Rs. 2500/- is given to the employee. If the years of service are not greater than 3, then the program should do nothing

24. If his basic salary is less than Rs. 1500, then HRA = 10% of basic salary and DA = 90% of basic salary. If his salary is either equal to or above Rs. 1500, then HRA = Rs. 500 and DA = 98% of basic salary. If the employee's salary is input through the keyboard write a program to find his gross salary

25. The marks obtained by a student in 5 different subjects are input through the keyboard. The student gets a division as per the following rules: Write a program to calculate the division obtained by the student

- Percentage above or equal to 60 - First division
- Percentage between 50 and 59 - Second division
- Percentage between 40 and 49 - Third division
- Percentage less than 40 – Fail

**26. A company insures its drivers in the following cases:**

- If the driver is married
- If the driver is unmarried, male & above 30 years of age
- If the driver is unmarried, female & above 25 years of age

**27. Write a program to calculate the salary as per the following table**

| Gender | Year of Service | Qualifications | Salary |
|---|---|---|---|
| Male | >= 10 | Post - Graduate | 15000 |
| | >= 10 | Graduate | 10000 |
| | < 10 | Post - Graduate | 10000 |
| | < 10 | Graduate | 7000 |
| Female | >= 10 | Post - Graduate | 12000 |
| | >= 10 | Graduate | 9000 |
| | < 10 | Post - Graduate | 10000 |
| | < 10 | Graduate | 6000 |

28. A five-digit number is entered through the keyboard. Write a program to obtain the reversed number and to determine whether the original and reversed numbers are equal or not

29. If the ages of Ram, Shyam and Ajay are input through the keyboard, write a program to determine the youngest of the three

30. Write a program to check whether a triangle is valid or not, when the three angles of the triangle are entered through the keyboard. A triangle is valid if the sum of all the three angles is equal to 180 degrees

31. Find the absolute value of a number entered through the keyboard

32. Given the length and breadth of a rectangle, write a program to find whether the area of the rectangle is greater than its perimeter. For example, the area of the rectangle with length = 5 and breadth = 4 is greater than its perimeter

33. A certain grade of steel is graded according to the following conditions

i. Hardness must be greater than 50
ii. Carbon content must be less than 0.7
iii. Tensile strength must be greater than 5600

The grades are as follows:

- Grade is 10 if all three conditions are met
- Grade is 9 if conditions (i) and (ii) are met
- Grade is 8 if conditions (ii) and (iii) are met
- Grade is 7 if conditions (i) and (iii) are met
- Grade is 6 if only one condition is met
- Grade is 5 if none of the conditions are met

Write a program, which will require the user to give values of hardness, carbon content and tensile strength of the steel under consideration and output the grade of the steel

**34. A library charges a fine for every book returned late. For first 5 days the fine is 50 paise, for 6-10 days fine is one rupee and above 10 days fine is 5 rupees. If you return the book after 30 days your membership will be cancelled. Write a program to accept the number of days the member is late to return the book and display the fine or the appropriate message**

**35. In a company, worker efficiency is determined on the basis of the time required for a worker to complete a particular job. If the time taken by the worker is between 2 – 3 hours, then the worker is said to be highly efficient. If the time required by the worker is between 3 – 4 hours, then the worker is ordered to improve speed. If the time taken is between 4 – 5 hours, the worker is given training to improve his speed, and if the time taken by the worker is more than 5 hours, then the worker has to leave the company. If the time taken by the worker is input through the keyboard, find the efficiency of the worker**

**36. Write a Java program that accepts three numbers and check All numbers are equal or not**

**37. Write a Java program that reads an positive integer and count the number of digits**

**38. Write a java program that accepts three numbers from the user and check if numbers are in "increasing" or "decreasing" order**

**39. Write a Java program to create a simple calculator**

**40. Write a Java program to check whether the given integer is a multiple of 5**

# Programming Questions and Exercises : Loops

**Question 1**

Write a program to print numbers from 1 to 10.

**Question 2**

Write a program to calculate the sum of first 10 natural number.

**Question 3**

Write a program that prompts the user to input a positive integer. It should then print the multiplication table of that number.

**Question 4**

Write a program to find the factorial value of any number entered through the keyboard.

**Question 5**

Two numbers are entered through the keyboard. Write a program to find the value of one number raised to the power of another. (Do not use Java built-in method)

**Question 6**

Write a program that prompts the user to input an integer and then outputs the number with the digits reversed. For example, if the input is 12345, the output should be 54321.

**Question 7**

Write a program that reads a set of integers, and then prints the sum of the even and odd integers.

**Question 8**

Write a program that prompts the user to input a positive integer. It should then output a message indicating whether the number is a prime number.

**Question 9**

Write a program to calculate HCF of Two given number.

**Question 10**

Write a do-while loop that asks the user to enter two numbers. The numbers should be added and the sum displayed. The loop should ask the user whether he or she wishes to perform the operation again. If so, the loop should repeat; otherwise it should terminate.

**Question 11**

Write a program to enter the numbers till the user wants and at the end it should display the count of positive, negative and zeros entered.

**Question 12**

Write a program to enter the numbers till the user wants and at the end the program should display the largest and smallest numbers entered.

**Question 13**

Write a program to print out all Armstrong numbers between 1 and 500. If sum of cubes of each digit of the number is equal to the number itself, then the number is called an Armstrong number. For example, 153 = ( 1 * 1 * 1 ) + ( 5 * 5 * 5 ) + ( 3 * 3 * 3 )

**Question 14**

Write a program to print Fibonacci series of n terms where n is input by user :
0 1 1 2 3 5 8 13 24 .....

**Question 15**

Write a program to calculate the sum of following series where n is input by user.
1 + 1/2 + 1/3 + 1/4 + 1/5 +……1/n

**Question 16**

Compute the natural logarithm of 2, by adding up to n terms in the series
1 - 1/2 + 1/3 - 1/4 + 1/5 -... 1/n
where n is a positive integer and input by user.

**Question 17**

Write a program that generates a random number and asks the user to guess what the number is. If the user's guess is higher than the random number, the program should display "Too high, try again." If the user's guess is lower than the random number, the program should display "Too low, try again." The program should use a loop that repeats until the user correctly guesses the random number.

**Question 18**

Write a program to print following :

**i)**
```
**********
**********
**********
**********
```

**ii)**
```
*
**
***
****
*****
```

**iii)**
```
    *
   **
  ***
 ****
*****
```

**iv)**
```
    *
   ***
  *****
 *******
*********
```

**v)**
```
    1
   222
  33333
 4444444
555555555
```

**vi)**
```
    1
   212
  32123
 4321234
543212345
```

**Question 19**

Write a program to compute sinx for given x. The user should supply x and a positive integer n. We compute the sine of x using the series and the computation should use all terms in the series up through the term involving $x^n$

$\sin x = x - x^3/3! + x^5/5! - x^7/7! + x^9/9! .....$

**Question 20**

Write a program to compute the cosine of x. The user should supply x and a positive integer n. We compute the cosine of x using the series and the computation should use all terms in the series up through the term involving $x^n$

$\cos x = 1 - x^2/2! + x^4/4! - x^6/6! .....$

**Question 21**

Write a program in java to find the sum of the even and odd digits of the number which is given as input.