

SHEET No. 1 Java programming (loop & condition)

Q1 write a java program to determine the net payable amount on a sale. The net payable amount consists of the sale price plus sales tax. The sales tax is decided as

- a. 8% of the sale price for national items
- b. 18% of the sale price for foreign items

Q2 write a java program to calculate the bonus for the employees of an organization based on the following rules.

- (i) If the pay is more than \$3,000, the bonus amount is fixed, and it is equal to \$300.
- (ii) If the pay is more than \$1,600, but less than or equal to \$3,000, the bonus will be 10% of the pay subject to a maximum of \$240.
- (iii) If the pay is less than or equal to \$1,600, the bonus is 15% of pay, subject to a minimum of \$100

Q3 By using switch-case statement, write a java program to select a certain steel is graded according to the following conditions:

- (i) Rockwell hardness > 50
- (ii) Carbon content > 0.7 (iii) Tensile strength > 5600 kg/cm²

The steel is graded as follows:

- a. Grade 10, if all the conditions are satisfied
- b. Grade 9, if conditions (i) and (ii) are satisfied
- c. Grade 8, if conditions (ii) and (iii) are satisfied
- d. Grade 7, if conditions (i) and (iii) are satisfied
- e. Grade 0, otherwise

Q4 write a java program to show how the greatest of the three given numbers can be obtained.

Q5 A bookseller offers two rates of commissions. If the price of a book is below \$100, the rate of commission is 12% of the price, otherwise, it is 18% of the price. Write a java program to determine the discount and the net price of a book.

Q6 write a java program to compute a worker salary according to the following rules: A labor contractor pays the workers at the end of each week according to the rules given below:

For the first 35 hours of work, the rate of pay is \$15 per hour; for the next 25 hours, the rate of pay is \$18 per hour; for the rest, the rate of pay is \$26 per hour. No worker is allowed to work for more than 80 hours in a week.

Q7 write a java program to implement the following scenario: The cost of living (CL), the travel allowance (TA), and medical allowance (MA) of the employees of a company are decided according to the following rules:

CL = 123.75% of the Basic Pay, subject to a minimum of \$2,000 and a maximum of \$5,000.

TA = 57.5% of the Basic Pay, subject to a minimum of \$300. MA = 73.5% of the Basic Pay, subject to a maximum of \$2,000

Q8 write a java program to print the numbers below 100 that are divisible by 7.

Q9 Write a Java program that read student name and four marks form the keyboard. Then, it determines a student's final grade and indicate whether it is a passing or failing grade. The final grade is calculated as the average of the four marks.

Q10 Write a Java program to obtain the factorial of 20.

Q11 write a java program to sum the even numbers between 0 and 59.

Q12 write a java program to accepts N numbers and get the summation of negative numbers, the summation of positive numbers, then count the numbers in each group.

Q 13 Write a Java program to print the Fibonacci series up to a given number. The Fibonacci sequence is a series of numbers where a number is the sum of the two preceding ones, usually starting with 0

0 1 1 2 3 5 8 13 21

Q 14 Write a Java program that takes a student's marks of N subjects and calculates the total, percentage, and grade according to the following rules:(use Wile loop and switch case conditions)

- Grade A: 90% and above
- Grade B: 80% to 89%
- Grade C: 70% to 79%
- Grade D: 60% to 69%
- Grade F: Below 60%

Q 15 Write a Java program that reverses a number input by the user. Use loops to extract each digit and rebuild the reversed number.

Q16 Write a Java program that calculates the sum of the digits of a number entered by the user. Use a while loop to extract each digit and compute the sum.

Q 17 Write a Java program that finds all prime numbers between two integers entered by the user using a for loop and conditions.

Q 18 A strong number is a number in which the sum of the factorial of its digits is equal to the number itself (e.g., $145 = 1! + 4! + 5!$). Write a Java program to check if a number entered by the user is a strong number.

Q 19 A Harshad number (or Niven number) is a number that is divisible by the sum of its digits. Write a Java program to check if a number is a Harshad number.

Q 20 Write a Java program that prints a pyramid of numbers using nested loops. The user enters the number of rows, and the program prints a pyramid structure.

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Enter number of rows: 5
  1
 2 3
4 5 6
7 8 9 10
11 12 13 14 15
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