**LIST OF PROGRAMS**

1. **Simple Programs on Input and Output**
2. Input three numbers and find the sum and product of three numbers
3. Input salary and calculate net salary as Net Salary = Salary + 10% of Salary + Rs. 100
4. A) Input temperature in degree Fahrenheit and compute in degree Centigrade

C = (F – 32) / 1.8

B) Input temperature in degree Centigrade and compute in degree Fahrenheit

F = (C \* 1.8) + 32

1. Input five subject marks of a student and print the total and average marks
2. Input the radius of a circle and compute the area and circumference of it (pi=3.14)
3. Input the side of the square and calculate the area and perimeter of the square
4. Input the length and breadth of the rectangle and calculate the area and perimeter.
5. A) Input the three sides of the triangle and calculate the area and perimeter
6. Input the base and height of the triangle and calculate the area and perimeter
7. Calculate Simple Interest and Amount given the Principal, Rate of Interest and number of years
8. Write a program to calculate depreciation given inputs purchase price, salvage value, years of service. Depreciation = (Purchase Price – Salvage value) / years of service
9. Calculate the distance travelled given initial velocity, acceleration and time:

v = ut + ½ at2

1. Find the surface area and volume of the cube given its side.
2. Find the surface area and volume of the cuboid given its length, breadth and height
3. Input the radius and height of the cylinder and calculate the curved surface area, total surface area and volume
4. Input the radius and height of the cone and calculate the curved surface area, total surface area and volume
5. Input the radius of the sphere and calculate the total surface area and volume
6. Write a program to convert degrees to radians
7. **Conditional Statements Programs**
8. Input the marks of a student, if the marks is > 50, print ‘PASS’ else print ‘FAIL’
9. Read a number x, if x > 10, print y = x-2 else print y=0
10. The cost of one ticket is Rs. 100. If the tickets bought is> 10, then a discount of 15% is given. Input the number of tickets and calculate the cost of the tickets
11. A worker is paid Rs. 5 / hour for a week, if he works for less than or equal to 40 hours in that week. For every extra hour, he gets Rs.1.5 extra. Calculate the weekly salary of the worker
12. Input two numbers and calculate the maximum of the two numbers
13. Input a number. If it is positive print message ‘POSITIVE’ else print ‘NEGATIVE’
14. Input a number, if it is greater than 10, multiply it by 1000, else add 100 to it
15. Input an integer number and check it is even or odd, and print appropriate message
16. Read an integer number and check it is divisible by 3, and print appropriate message
17. Find the sum of the digits of a two digit number.
18. Find the maximum of three numbers, using if, else if and logical operators
19. Print the grade based on the average marks obtained:

80 to 100: HONOURS, 60 to 79: FIRST DIVISION, 50 to 59: SECOND DIVISION, 40 to 49: THIRD DIVISION and less than 39 is FAIL

1. Print the color based on the code:

1: RED, 2:YELLOW, 3:BLUE, 4:GREEN and Default is WHITE

1. An electric power company charges domestic consumption based on:

Consumption Units Rate of Charge

0 – 200 Rs. 0.50 / unit

201 – 400 Rs. 100 + 0.65 / unit

401 – 600 Rs.230 + 0.80 / unit

above – 600 Rs. 390 + Rs. 1 / unit

Calculate the charges for units consumed.

1. Read the value of x and compute (using else-if and nested if statements)

y = 1 x > 0

1. x =0
2. x < 0
3. A cloth showroom has announced the following discounts. Find the net amount to be paid based on the purchase amount

Purchase amount Type of cloth

Mill Cloth Handloom items

0 – 100 - 5%

101 – 200 5% 7.5%

201 – 300 7.5% 10%

above – 300 10% 15%

PROGRAMS ON LOOPING

1. Summation Series (Try wit for loop and while loop, both)
   1. Sum = 1+2+3……n terms
   2. Sum = 1+1+1……n terms
   3. Sum = 1+3+5……n terms (Odd numbers)
   4. Sum = 2+4+6……n terms= (Even Numbers)
   5. Sum = x+x+x……n terms where x is any float value
   6. Sum = x+2x+3x……n terms where x is any float value
   7. Sum = 1\*2+2\*3+3\*4……n terms

3 4 5

* 1. Sum = 1/2+2/3+3/4……n terms
  2. Sum = 1/1!+2/2!+3/3!……n terms
  3. Sum = x/1!+x2/2!+x3/3!……n terms
  4. Sum = x-x2/2!+x3/3!……n terms (alternate terms are negative)

1. Find the factorial of a number n
2. Find the average marks of n students, by inputting their individual marks
3. Find the sum of the input numbers. The input is terminated by a sentinel value of -9999
4. Program to print Fibonacci numbers less than n
5. Find the roots of the quadratic equation ax2 +bx + c = 0
6. Print the Multiplication Table as follows:

1 2 3 4 5 6 7 8 9 10

2 4 6 8 10 12 14 16 18 20

……………………………………..

10 20 30 40 50 60 70 80 90 100

1. Find the sum of the digits of an integer number
2. Print the reverse of a given integer number
3. Convert an integer number to binary
4. Convert an integer number to octal number
5. Check whether the given number is prime or not
6. Check whether a given number is an Armstrong number or not. An Armstrong number of three digits is an integer such that the sum of the cubes of its digits is equal to the number itself. For example, 371 is an Armstrong number since 33 + 73 + 13 = 371.
7. If the reverse square root of the reverse of square of a number is the number itself then it is AdamNumber.   
   For ex., 12 and 21   
   Take 12   
   square of 12 = 144   
   reverse of square of 12 = 441   
   square root of the reverse of square of 12 = 21   
   The reverse square root of the reverse of square of 12 = 12, then number itself.   
   Such number is called Adam Number.

Write a program to find Adam numbers between 1 and 1000

1. A perfect number is a number that is the sum of all its divisors except itself.

Example 6 = 1 + 2 + 3 (1,2,3 are all divisors of 6)

Write a program to print all perfect numbers between 1 and 1000

1. Print the following series:
   1. 1 2 4 8 16 ………….n terms
   2. 1 3 9 27 ………..n terms
   3. -4 -2 0 2 4 ……..n terms

ARRAYS

1. Find the maximum of n numbers
2. Arrange n numbers in ascending / descending order
3. Find the median of a set of numbers
4. Find the standard deviation of a set of numbers
5. Find the sum and difference of two matrices
6. Check whether a matrix is an identity matrix
7. Transpose a square matrix
8. Multiply two matrices
9. Create an array of maximum values by finding the maximum in each row of a m x n two dimensional matrix

CHARACTERS AND STRINGS

1. Count the number of vowels in a string
2. Search for a name in an array of names.
3. Check if a string is a palindrome or not
4. Find if a string is a sub string of another string
5. Count the number of words in a sentence
6. Write a program to reverse the content of a string

FUNCTIONS

( Most of the programs above can be re-written by defining and using functions.)