INDIAN INSTITUTE OF TECHNOLOGY ROORKEE
ROORKEE – 247 667
Programming with C and C++ (CSC-101)

Assignment 01 Autumn Semester 2023-24

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1. Write a C program to find the multiplication of given four numbers. Also, find their geometric mean.

2. Given as input a floating (real) number of centimeters, print out the equivalent number of feet (integer) and inches (floating, 1 decimal), with the inches given to an accuracy of one decimal place. Assume 2.54 centimeters per inch and 12 inches per foot. If the input value is 333.3, the output format should be: 333.3 centimeters is 10 feet 11.2 inches.

3. Given as input an integer number of seconds, print as output the equivalent time in hours, minutes, and seconds. The recommended output format is something like 7322 seconds is equivalent to 2 hours 2 minutes 2 seconds.

4. Write a C program to multiply two numbers without using the * operator.

5. Write a C program to find the roots of the quadratic equation and display a message that roots are equal or distinct or real or complex.

6. Write a C program to find whether given integer n is a power of 2 or not. Also, write a separate/same program to generate a first 50 power of 2 numbers.

7. Write a C program to reverse a given number of 5 digits.

8. Write a C program to find the median of n numbers given by the user.

9. Write a C program to find the maximum of three numbers using the ternary operator.

10. Write a C program to check whether the entered number is Armstrong number or not.
    NOTE: Armstrong number is a number that is equal to the sum of cubes of its digits. For example: $153 = 1^3 + 5^3 + 3^3$

11. Write a C program to find the electricity bill using the following information. Take number of the units from the user as input.

No of Units consumed	**Amount per unit in Rs.**
0-200	0
201-400	5
401-600	7
601-800	9
801-above	11

For Example: If the number of units is 450, then the Amount of the bill will be 1350 Rs.

12. Evaluate the following expressions

    (a) $x = 2\%2 + 2 * 2 - 2/2;$

    (b) Given a=4, b=5 and c=6;
    Find $((a < b)||(b > c)\&\&(a > b)||(!(a > c)))$

    (c) i=8, j=5, x=0.005, y=-0.01;
    Find $5 * ((i/7) + (j * (i - 3))\%(x + y - 2 + i))$

    (d) $y = (t = 6,\ 7 * t + 2)$

13. Write a C program which reads two numbers x and y, then finds the GCD of x and y.

14. Write a C program to find the sum of integers between 50 and 100, which are divisible by 7.

15. Write a C program to find the factorial of number using:

    (a) For loop

    (b) While loop

    (c) Do loop

16. Enlist the common header files that you know in C/C++.