**Topics: Data types, variables, constants, operators, expressions, type conversions**

1. Declare variables of various data types {char, int, float, double}. Apply various qualifiers from {long, short, signed, unsigned}. Then apply the sizeof operator to print the size of the different types. Try applying the operator on the data type as well as on the declared variable.
2. You are given the speed of a car (a real number) in miles per hour (MPH). You need to convert it to feet per second.
3. You are given the rotational speed of a car’s wheel (an integer) in rotations per minute (RPM). Read the input as an integer. A second integer represents the radius of the car in centimeters. Then you need to output the speed of the car in miles per hour (MPH).
4. Read 2 integers from console, store them in 2 integer variables. Then swap the values of those variables and print them out.
   1. You will need a 3rd integer variable to complete this task.
   2. Can you solve this problem without the additional variable?
5. You are given Cartesian co-ordinates of 2 points in 3-dimensional space. Assume integer co-ordinates. You need to print out the square of the Euclidean distance between the 2 points. (To print the distance itself, rather than the square, you will need to call the sqrt() function, available in math.h header file.
6. You are given 2 dates in dd/mm/yyyy format. The first date is in future of the second date. You need to calculate the difference between the dates. Then print “The difference is x years, y months and z days”.
7. Print max and min of different data types. (Use limits.h and float.h)
8. prefix and suffix increment operators demonstration.
9. Given a roll number print which section the student belongs to. Also print in which sessional section the student belongs to.
10. You are given a Hexadecimal number, whose digits are guaranteed to be between A-F. You need to convert it to a decimal number.
11. Given a 3 digit number, calculate its digit sum.
12. Count the number of 1's in a binary number between 0-31.
13. Convert a decimal number to octal. The decimal number is no more than 3 digits.