# Introduction to Computing Laboratory
## Assignment – 5

1. Write a program in C to find the value of $x^n$ where the inputs $x$ and $n$ are integers.

2. Write a program in C to find the sum of the digits of any valid integer number.

3. Write a C program to enter any number and check whether the number is palindrome or not.

4. Write a program in C to check whether a given number is prime or not.

5. Write a program in C to check whether a given number is perfect or not.

6. Write a program in C to generate first $n$ number of terms of Fibonacci sequence where the value of $n$ will be accepted as input.

7. Write a program in C to print all the Armstrong numbers in the range *low* to *high* where *low* and *high* ( *low* < *high* ) are two input integer numbers.

8. Write a program in C that will repetitively prompt the user to enter a character through keyboard and print the ASCII value of that character. This repetitive process will terminate as soon as the user will input the character '*q*'.

9. Write programs in C to evaluate the following where the value of *n* will be accepted as input.

   (a) $S = 1 - 2 + 3 - 4 + \ldots\ldots\ldots n$ terms.

   (b) $S = 1! + 2! + 3! + \ldots\ldots\ldots n$ terms.

   (c) $S = \sum_{i=1}^{n} \frac{1}{i}$

   (d) $S = 1 + 4 + 9 + 16 + \ldots\ldots\ldots n$ terms.

   (e) $S = 1^1 + 3^2 + 5^3 + \ldots\ldots\ldots n$ terms.

10. Write programs in C to generate the following patterns for *n* number of lines where the value of *n* will be accepted as input.

| (a) | (b) | (c) | (d) | (e) |
|---|---|---|---|---|
| 1 | 1 | 1 | **** | 1 |
| 123 | 10 | 2 3 | *** | 1 1 |
| 12345 | 101 | 4 5 6 | ** | 1 2 1 |
| 1234567 | 1010 | 7 8 9 10 | * | 1 3 3 1 |