Programming for Problem Solving – I Laboratory

1. Write the function definition of the following function declaration in C programming language. Use it to swap two numbers. Here, ‘a’ and ‘b’ are formal arguments to accept the addresses of numbers passed to it.

   void swap(int* a, int* b);

2. Write the function definition of the following function declaration in C programming language. Use this function to calculate the value of x^n where x and n is user given.

   double pow(double x, int n);

3. Write the function definition of the following **recursive** function declaration in C programming language. Use this function to calculate GCD of two user given number (a, b).

   int GCD(int a, int b);

4. Write the function definition of the following **recursive** function declaration in C programming language. Use this function to calculate the factorial of a user given number ‘n’.

   int fact(int n);

5. Write the function definition of the following function declaration in C programming language. Use this function to calculate the Binomial Coefficients $\binom{n}{r} = \frac{n!}{r!(n-r)!}$ For any user given value of n and r. Use the previously defined function “fact()” (Question no. 4) in this program.

   int ncr(int n, int r);

6. Write the function definition of the following function declaration in C programming language. Use this function to calculate the length of a user given String. Here, ‘s’ is formal arguments to accept the address of the string passed to it.

   int strlen(char* s);

7. Write the function definition of the following function declaration in C programming language. Use this function to reverse a user given string. Use the function declared & defined in Question no. 5. Here, ‘s’ is formal arguments to accept the address of the string passed to it.

   char* strrev(char* s);

8. Write a C program to check if a user given String is palindrome or not. Use the function declared & defined in Question no. 5.