# ID1063 Lab Exam Two
# EP

Time: 3 hours

Total Marks: 5+10+10=25

1. The square-free part of a positive integer $n$ is what's left out after all the square factors are divided out. For example, the square-free part of $24 = 2^3 \cdot 6$ is 6 (after dividing out 4), and the square-free part of 500 is 5. Write a program to accept a positive integer $n$ and find its square-free part.

2. (a) Write a generic compose function that accepts a pointer to a function f of one variable, a pointer to a function g of one variable, and a variable x, and computes g(f(x)).

   (b) Test your function by writing a pair of functions string_square and string_reverse, that squares a string, and reverses a string respectively; that is: applying string_square on the string apple would produce appleapple. You may call the in-built function strrev in string.h. When compose(string_square,string_reverse,word) is called with word having the string bird, the output is dribdrib.

3. (a) Write a function to accept two strings and check if they are anagrams of each other. Two strings are anagrams if they contain the same multiset of letters, but in different orders. For example, sergeant and reagents are anagrams, but pear and appear are not anagrams.

   (b) Write a program to accept a string and do the following: if the string has less than 7 characters, print "Short string"; if the string has at least 11 characters, print "Long string"; otherwise, print all anagrams of the string which are present in the one of the files "7letterWords.txt", "8letterWords.txt", "9letterWords.txt", "10letterWorsnds.txt".