Data Structure HW#1

Part I Paper Work

1 (Exercise 2 of Chapter 1.3) Create an ADT, *Set*, as the ADT of *NaturalNumber* in ADT 1.1.

2 Prove Theorem 1.4 in Page 54.

3 (Exercise 3 of Chapter 1.7) Determine the frequency counts for all statements in program segments (a) and (b).

4 (Exercise 4 (a)-(d) of Chapter 1.7) Using a global variable, count, to count the steps of program 1.32.

5 (Exercise 8 (b)-(i) of Chapter 1.7) Show the equalities are correct (Prove each of them).

Note: You can reuse one-side used papers but must in A4 size. Please hand in your assignments to the TAs (R721, Applied Science &Technology Building,) by the deadline.

Part II Programming Exercise

1 Write a recursive function in C++ that prints the sequence of moves that accomplish the task of *Tower of Hanoi*. You can refer to Exercise 15 of Chapter 1.5 for the details of *Tower of Hanoi*.

Note: You have to write a C++ program, compile it and then run it in an IDE like Dev C++ or Visual Studio C++. Please compress your code as well as the snapshot your execution results into a zip file and upload it to **iLearning**.