Assignment 2A (20 marks) – Lab Week Six

Due Dates: Part B – End of your week Seven's lab period (Week of 19 – 23 Oct 2015)
Part A – On Blackboard by Friday, October 23 2015@23:59

Lab Week Six Hand-In Sheet

Name: _____   ***Circle Your Lab Period/Time***

Student Number: _____   Tue: 10 – 12   Wed: 1 – 3   Wed 3 – 5   Fri 2 – 4

First Assembly Program

Using the hybrid video *First ASM 15W Update,* this lab exercise leads you through the Software Engineering Analysis, Design and Testing stages of the solution of a simple mathematical problem using 68HCS12 Assembly Language as the target language. The Assembler and Simulator that will be used for the lab should have been installed during Lab Week One (Hybrid), and can be found in your list of programs in the Windows environment under *Designing with Microcontrollers – The 68HCS12*. **AsmIDE** is the name of the assembler, while **Simulator – Dragon12 & Student Mode** is the simulator that we will use for this lab exercise. The Resources folder on Blackboard also contains other valuable sources of information that you can refer to regarding Assembly Language programming.

PURPOSE OF LAB:

The purpose of this lab is to become familiar with both the assembler and simulator that will be extensively used in this course. Additionally, the lab will introduce you to assembly language concepts and the terminology used in this type of programming environment. You should make notes pertaining to the content of the lab video *First ASM Program 15W Update* and understand the concepts presented, as other assessments in the course will test you on this knowledge.

Part A – (10 marks) Multiple Choice Questions (based on the Hybrid Video – First ASM Program 15W Update)

* Answer the multiple choice questions for this lab assignment ***using the link on Blackboard***. Your Blackboard Gradebook mark will be incorporated into your mark for this assignment.

PART B (10 marks) – Submit this marking guide and a hardcopy of your assembly language code (First.asm) you entered in this lab exercise as printed from the assembler **AsmIDE***.*

Do not print your submission from any other source or cut and paste it into a document; otherwise, you will receive a mark reduction of 4 marks for PART B.

Ensure that your source code closely resembles my version, but modify the header information to reflect your Student Information and the correct date.

Use the TAB key in *AsmIDE* for column spacing.

Ensure that your submitted copy contains the following (2 marks for each category)

Item	Marks
Correct header information	
Correct addresses	
Correct column spacing	
Correct code	
Correct comments	

Your mark	/10

```
1 ; First.asm
2 ;
3 ; Author:           D. Haley
4 ; Student Number:   nnn-nnn-nnn
5 ; Date:             3 Oct 2015
6 ;
7 ; Purpose:          Add the following values: $25 + $37 - $1
8 ;
9         org     $1000           ; Set current location to start of RAM
10 p:     db      $25             ; First addend is at location p
11 q:     db      $37             ; Second addend is at location q
12 r:     ds      1               ; Sum will be stored at location r
13        org     $2000           ; Set current location to start in ROM
14        ldaa    p               ; load value at p into accumulator a
15        adda    q               ; add value at q into accumulator a
16        deca                    ; decrement a
17        staa    r               ; store accumulator a at location r
18        end
```