Assignment 1

Due date: 26-09-2023

Section 1 (30 marks)

1. **What is the decimal representation of each of the following unsigned binary integers? (4 marks)**
    a. 11111000
    b. 11001010
2. **What is the binary representation of the following hexadecimal numbers? (4 marks)**
    a. 0126F9D4
    b. 6ACDFA95
3. **What are the number of inputs for a truth table with 3 variables x, y, z? (1 mark)**
4. **What is the 8-bit binary (two's-complement) representation of each of the following signed decimal integers? (1 mark)**
    a. -72
    b. -98
5. **Is assembly language portable? Explain. (4 marks)**
6. **Compare between the following: (16 marks)**
    a. Carry and sign flags
    b. Flat and multi-segment models
    c. Data, control, address buses
    d. Logical and physical address

Section 2 (20 marks)

Objectives

1. To learn how to write a simple program in assembly language.
2. Become familiar with simple commands ADD, SUB.

1. Write an assembly program that is equivalent to the following C++ statements. Show the output by calling DumpReg. (10 marks)

C++

```
int Y;
int X = (Y + 4) * 3;
```

2. Write an assembly program that adds the two hexadecimal numbers 20000 and 30000h and then subtracts 10000h from the summation results. Show the output by calling DumpReg. (10 marks)

Submission

For Section 1, the file should be in Word (docx) or PDF format.

- It is mandatory that students complete their own work and must be able to justify their answers when asked to do so by instructors and teaching staff.
- Students are responsible for making sure that their assignments are received by or on the due dates.
- Submit the assignment ONLY on Brightspace.
- Submissions by email will not be accepted.
- Add the following note at the beginning of your assignment: "I confirm that I will keep the content of this assignment confidential. I confirm that I have not received any unauthorized assistance in preparing for or writing this assignment. I acknowledge that a mark of 0 may be assigned for copied work." - Your Name - SID.

For Section 2 (programming assessment):

- Submit your source code in a .asm file (preferred) or .txt file.
- Include title, name, date, ID, and description at the top of the source code.
- Additional Instructions for Programs:
- Write your program in a .asm file on MS Visual Studio or Easy-MASM.
- Test and debug the program to ensure it runs without any issues before submission.
- Submit the .asm file or copy and paste your code into a .txt file and submit it.

- For the programs, DO NOT SEND A PDF, A HANDWRITTEN PAPER, OR A ZIPPED FOLDER.
- Students may send a screenshot of the program execution.

Evaluation

- Any late submissions will lose 50
- Any programs submitted as PDFs or handwritten notes, even if submitted on time, will receive an automatic zero.