**Lab 1**

**Lab conditions:**

This lab exercise to be completed by the end of the class. No late submission will be accepted

Work as group of two students or individually.

Submit a Word document file or a PDF file on D2L @ Activities >> Assignments >> Lab 1.

Make sure your following naming format as listed below:

Last name, First Name: \_\_\_\_Afonso, Markus\_\_\_\_\_

Student ID: \_\_\_\_\_\_\_\_A01333486\_\_\_\_\_\_\_\_\_

**Questions:**

1. Decimal to binary conversion

1. 36=?

36 = 32 + 4

= 25 + 22

= (100100)2

1. 15=?

15 = 8 + 4 + 2 + 1

= 23 + 22 + 21 + 20

= (1111)2

2. Decimal to hexadecimal conversion

1. 158=?

158/16 = 9 R 14

9/16 = 0 R 9

= (9E)16

1. 216=?

216/16 = 13 R 8

13/16 = 0 R 13

= (D8)16

3. Binary to hexadecimal conversion

1. 1101101 =?

= 26+ 25 + 23 + 22 + 20

= (109)10

109/16 = 6 R 13

6/16 = 0 R 6

= (6D)16

1. 0101101 =?

= 25 + 23 + 22 + 20

= (45)10

45/16 = 2 R 13

2/16 = 0 R 2

= (2D)16

4. Suppose we are working with 8 bits quantities.

1. Provide details how -28 and 11 would be expressed in two's complement.

To represent -28 in two’s complement we first need to find its binary value

28 = 16 + 8 +4

= 24 + 23 + 22

= 00011100 🡪 now we can flip the 0’s to 1’s and 1’s to 0’s and + 1

= 11100100

To represent 11 in two’s complement, like -28 we need to find the binary value

11 = 8 + 2 + 1

= 23+ 21 + 20

= 00001011 🡪 No need to flip as it is a positive number

1. Converting (2’s complement) to hexadecimal

-28 is 11100100 in two’s complement so we can convert that to decimal

11100100 = 27 + 26 + 25 + 22

= 228 🡪 convert to hexadecimal

228/16 = 14 R 4

14/16 = 0 R 14

= E4

11 is 00001011 in two’s complement and because its positive we can just convert 11

11/16 = 0 R 11

= B

5. List out the 10 common system administration tasks.

1. Installation including OS and application programs
2. Configuration
3. Access Control
4. User management
5. Creating and removing user accounts
6. Updating permissions when users change roles
7. Managing large numbers of users
8. Monitoring
9. Updates
10. Application Updates

5. Challenge Questions (Optional)

Suppose we are working with 2 bytes quantities. Provide details how -11 would be expressed in two's complement and convert it to hexadecimal.

11/2 = 5 R 1

5/2 = 2 R 1

2/2 = 1 R 0

½ = 0 R 1

= 0000 0000 0000 1011 🡪 flip and +1

= 1111 1111 1111 0101

= F F F 5