**COSC 2325 Computer Organization**

**Assignment 3**

**Due: 23:59pm, Sept. 19, 2022**

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**L20498001**

Lamar Number (L #) = [L1, L2, L3, L4, L5, L6, L7, L8]

Example: L Number=20456789, L1=2, L2=0, L3=4, L4=5, L5=6, L6=7, L7=8, L8=9;

Decimal representation L1L2L3 is 20410 (two hundred and four in base 10)

**Do NOT use 20456789 to do this assignment. It is just an example to show you what L1 to L8 are. You need to use YOUR OWN L number to do this assignment.**

1. Convert the ***base 7 representation*** L1L2L3 to ***base 8*** (25 points)

L1L2L3 = 204

2047 = (4\*7­­0) + (0\*7­­1) + (2\*7­­2) = 4 + 98 + 10210

|  |  |
| --- | --- |
| digit[0] = 6 | 102 ÷ 8 = 12 R 6 |
| digit[1] = 4 | 12 ÷ 8 = 1 R 4 |
| digit[2] = 1 | 1 ÷ 8 = 0 R 1 |

2047 = 1468

1. If your ***base 10 representation*** L6L7L8 > = 100, convert **L6L7L8** from ***base 10*** to ***base 5.***

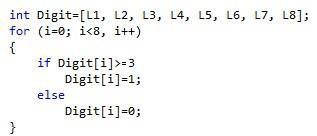
If your ***base 10 representation*** L6L7L8 < 100, convert **(L6L7L8 + 100)** from ***base 10*** to ***base 5.*** (25 points)

**(L6L7L8 + 100) = 10110**

|  |  |
| --- | --- |
| digit[0] = 1 | 101 ÷ 5 = 20 R 1 |
| digit[1] = 0 | 20 ÷ 5 = 4 R 0 |
| digit[2] = 4 | 4 ÷ 5 = 0 R 4 |

**10110 = 4015**

1. Convert the ***binary output*** of the following program to ***base 10***. (25 points)



Input: Digit = [2,0,4,9,8,0,0,1]

Output: Digit = [0,0,1,1,1,0,0,0]

001110002 = (1\*23) + (1\*24) + (1\*25)

= 8 + 16 + 32 = 5610