## CE-1901 - Dr. Durant - Quiz 8 Fall 2015, Week 8 Quiz

## 1. (8 points) ALUs

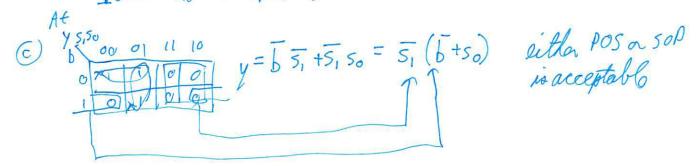
a. (4 points) Complete the following table for a 4-operation ALU:

S	Operation	Expression	LE (FA:a)	AE (FA:b)	CE (FA0:c <sub>i</sub> )
0	Subtract	A – B	ai	bi	1
1	Decrement	A	$a_i$	1	0
2	Increment	++A	ai	0	1
3	Nor	A nor B	ai+bi	0	0

- b. (2 points) Explain why the given extender values for decrement are correct. Provide an example where the input A = 1010.

example where the input A = 1010.

c. (2 points) Design the AE using a K-map 
$$\frac{1}{4}$$
 did Let only, connectly  $\frac{1}{4}$   $\frac{4 \log r}{dont}$  and  $\frac{1}{4}$   $\frac{$ 



## (not asholfer:) LE

$$x = 5,50 a \bar{b} + \bar{5}, a + \bar{5}, a$$

$$= 5,50 a + \bar{b} + (\bar{5,50}) a$$

- (2 points) Express G = -12 as a 6-bit number. Use this value of G as the starting point for each calculation below. a. Arithmetic right shift by 2 bits (binary and decimal)

  - Logical right shift by 2 bits (binary and decimal) Rotate left by 1 bit
  - 12: 001100

  - $\frac{111101}{1} \stackrel{\sim}{\to} 000010 + 000011$ Appet
    - 001101 = 13,0 OF/II
  - 101001 = 41,0 = -23,0 \(\omega\_{32} \) 8 1

reverse at6