

Assignment 1

COEN210
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Question 1

Draw a table for 4-bit binary values like the following example table with unsigned and signed value.

bits	unsigned	signed
0 0 0	0	0
0 0 1	1	1
0 1 0	2	2
0 1 1	3	3
1 0 0	4	-4
1 0 1	5	-3
1 1 0	6	-2
1 1 1	7	-1

Then use signed binary to calculate: $2 + 5$, $2 - 5$, $-5 - 2$

Question 2

For C programming language, give the width (number of bits) and integer range for these data types:

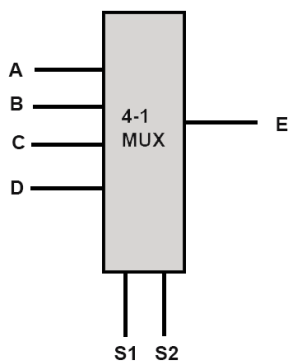
Type
char
unsigned char
signed char
int
unsigned int
short
unsigned short
long
unsigned long

Question 3

Follow the ROM example in lecture, draw a ROM circuit with 4bit address and 8bit width.

Question 4

Following is a 4-1 multiplexor with 4 input and 2 selector



- Create a truth table for this 4-2 multiplexor
- Write the formal form of logic formula for this truth table
- Implement the 4-1 multiplexor from this formula (draw circuit diagram)