**State your assumptions and show all of your reasoning and all computations. All work must be done on this sheet.**

1. **(6 pts)** **For an I2C device, 7 bits are used to address all slave devices.**

How many slave devices can be addressed?

1. **(4pts) What physical parameter may limit the number of devices to less than the answer of problem #1?**
2. **(6 pts) What does eUSCI stand for?**
3. **(4 pts) How many wires (neglecting ground reference) are required for I2C?**

**(select all that apply)**

* 1. **1**
  2. **2**
  3. **4**
  4. **6**

1. **(5 pts) How can two devices drive a “low” on the SDA line?**
2. **(5 pts) How can two devices drive a “high” on the SDA line?**
3. **( 6 pts) What happens when one device drives the SDA line “high” while the other drives it “low”?**
4. **(5 pts) What is the difference between ASYNCHRONOUS and SYNCHROUNOUS communication?**
5. **(4 pts) How does ASYNCRONOUS synch the data between receiver and transmitter?**

**(Select all that apply)**

* 1. **The baud rate must be similar**
  2. **Transmitter sends data multiple times**
  3. **Transmitter sends a start/stop bit**
  4. **Receiver sends an “ACK” bit.**

1. **(5 pts) When using the rotary encoder, once you get a trigger on the CLK pin, how do you determine direction?**