

1. Describe two differences between I2C master and slave devices?
 - a. Master devices initiate communication with slave devices
 - b. Slave devices can respond to a master device when requested, but can't start a new transaction on their own
2. What are the two connections in an I2C bus? Describe their purpose.
 - a. I2C uses two signal lines, these are SDA (Serial Data) and SCL (Serial Clock)
3. What is the difference between open-drain and push-pull outputs?
 - a. Open-Drain outputs have a single transistor and can only pull the output to a low state. Because of this, open-drain systems require an external connection—such as a pull-up resistor—to return the line to a high state when no device is pulling it low
 - b. Push-Pull outputs have drive transistors that allow the device to push the output line “high” by connecting to the supply rail of the device, as well as pulling it “low” by connecting to ground
4. What is the purpose of the I2C restart condition?
 - a. Because I2C is a half-duplex bus, master and slave devices can not transmit simultaneously. If a master wishes to both write and read from a slave, it must begin a new transaction with the appropriate read/write bit set for each transaction
5. What peripheral register would you use to set the read/write direction of the next I2C transaction?
 - a. Control Register 2 (I2C_CR2)
6. The 10-bit SADD bit-field holds the slave device address. Since standard I2C addresses only use 7 bits, to which bits in the bit-field would you write the shorter address?
 - a. 7-bit addressing mode uses bits [7:1]
7. Name one thing you found confusing or unclear in the lab.
 - a. Does the open drain only provide power when the transistor is closed, allowing the pull up resistor to power it?