1. What does the AUTOEND bit in the CR2 register do? Why don't you want to use it when you'll be needing a restart condition?

The autoend bit automatically generates a stop condition at the end of a transaction. We don't want to use this as we will be reading from the gyroscope multiple times during the transaction to read the current location and not restart each time.

2. This lab used standard-mode 100 kHz I2C speed. What values would you write in the TIMINGR if we were using 400 kHz fast-mode?

You would write to the timing r register 0x9 instead of 0x13 which we would use for the 100 kHz mode.

3. This lab used blocking code. To implement it completely as non-blocking you would replace all of the wait loops with interrupts. Most flags in the I2C peripheral can trigger an interrupt if the proper enable bit is set. Find the interrupt enable bits that match the following flags: The Inter-Integrated Circuit (I2C) Interface 17
    a. TC
       To enable the TC interrupt you need to enable the TCIE control bit by enabling bit 6 in the USART control register 1 (USART_CR1).
    b. NACKF
       To enable the NACKF interrupt you need to enable the NACKIE control bit by enabling bit 4 in the I2C control register 1 (I2C_CR1).
    c. TXIS (transmit interrupt)
       To enable the TXIS interrupt you need to enable the TXEIE control bit with bit 7 in the USART control register 1 (USART_CR1).
    d. ARLO
       To enable the ARLO interrupt you need to enable the ARBLSTIE control bit by enabling bit 7 in the CEC interrupt enable register (CEC_IER).
4. The gyro can operate in three full-scale/measurement ranges, measured in degrees-per-second (dps). What are these three ranges?

The three ranges are 245, 500, and 2000 dps. This is gotten from page 1 of the gyro datasheet.

5. What is the I2C address of the gyro when the SDO pin is low? The lab has the pin set high, read the I2C section of the gyro datasheet.

The address of the gyro when the SDO pin is low is 1101000b this is gotten from page 22 of the gyro datasheet.