1. **AUTOEND Functionality in I2C Communication**

The AUTOEND bit in the CR2 register of an I2C peripheral is a control flag that automatically generates a STOP condition after a specified number of bytes (NBYTES) have been transferred. However, it is not advisable to use AUTOEND when a restart condition is needed in the communication protocol. This is because enabling AUTOEND allows for the automatic termination of the connection with a STOP condition, potentially relinquishing control to other master devices on the bus.

2. **Setting Timing Register for Fast-Mode I2C**

In the case of using fast-mode I2C with a speed of 400 kHz, the appropriate value to be written in the TIMINGR register would be 0x00B00000. This configuration aligns with the I2C specifications outlined in the peripheral reference manual, where SCLDEL is set to 1011.

3. **Transitioning from Blocking to Non-Blocking I2C Implementation**

To transition from a blocking code implementation to a completely non-blocking one, all the wait loops would need to be replaced with interrupts. Various flags in the I2C peripheral can trigger interrupts if the corresponding enable bits are set. Specifically:

TC (Transfer Complete): Enable interrupt with TCIE = 1

NACKF (NACK Flag): Enable interrupt with NACKIE = 1

TXIS (Transmit Interrupt Status): Enable interrupt with TXIE = 1

ARLO (Arbitration Lost): Enable interrupt with ERRIE = 1

4. **Gyro Measurement Ranges**

❖ The gyro sensor featured in the lab can operate in three different full-scale measurement ranges, expressed in degrees-per-second (dps). These ranges are:

-245 dps

-500 dps

-2000 dps

5. **I2C Address of the Gyro with SDO Pin Low**

According to the gyro datasheet, when the SDO pin is set low, the I2C address of the gyro is 1101000.