**1. Which I2C port (device number), GPIO port and pins of the microcontroller are used**

**to connect and communicate with the OPT3001 sensor? (0.25 marks)**

The iC2 port used is port 0, The address of the OPT3001\_I2C address is 0x47 (slave address)

The GPIO port used for this is Port B

The Pins being used are PB2 and PB3

**2. When enabling the sensor (SensorOpt3001Enable(true)), which bits and what is the**

**value set for the Range Number Field in the configuration register and what is the**

**configured conversion time of the sensor? (0.25 marks)**

0x10C4

sensor receives this as 0xC410 as upper and lower bytes are received in reverse

Range number field is bits 15-12 and is set to 0xC or 1100b = 12

Conversion time (bit 11) is set to 0 therefore is 100ms

**3. In a 16-bit I2C write transmission to the OPT3001, which byte (high or low) is received first, and why is this important to know? (0.25 marks)**

The low byte is received first, this is very important to know because if messages are not reversed before being sent they create undefined behaviour as this will lead to incorrect configuration with the wrong pins being written to, ect.

**5. What is the method and what sensor registers are used in this demo to verify that the**

**i2c communication and sensor is correctly setup? (0.25 marks)**

To test that the i2c communication and sensor is correctly setup the sensorOpt3001Test function reads the manufacturer\_id and Device\_id through i2c, confirming both the communication and the sensor is working correctly if it returns the correct ids