PreLab 5:

Q1,   Aside from the power lines (VDD/GND), there are two lines that are used for data transfer in I2C, SDA and SCL.

The SDA is mainly for carrying sequential data, and start/stop sequences are used to initiate or stop transmission.

The SCL is the serial clock line, it provides synchronization for the SDA line, it is driven by master device.

Q2,   Start Condition:

At IDLE, both SDA and SCL is high, to initiate the transmission, the master device pulls the SDA line low while SCL remains high. Then the master would drive the serial clock.

End Condition:

The master would release the SDA line back to IDLE (high) while SCL line is high, this works because normal data transmission in I2C, the SDA only transition when SCL line is low (level sensitive)

Q3,   The maximum frequency of SCL frequency is 400kHz according to the datasheet.

Q4,   every 8 bits of data transmitted the ACK bit is sent by the receiving device (if the SLAVE device is receiving data it would, otherwise it won't)

Q5,   The default resolution is 13 bits

Q6,   Pin A0 & A1, thus 4 different address could be chosen, this is particularly useful when there is more than 1 (less or equal than 4) sensors of the same type on the same bus (as I2C is capable of chaining multiple devices on the same bus).