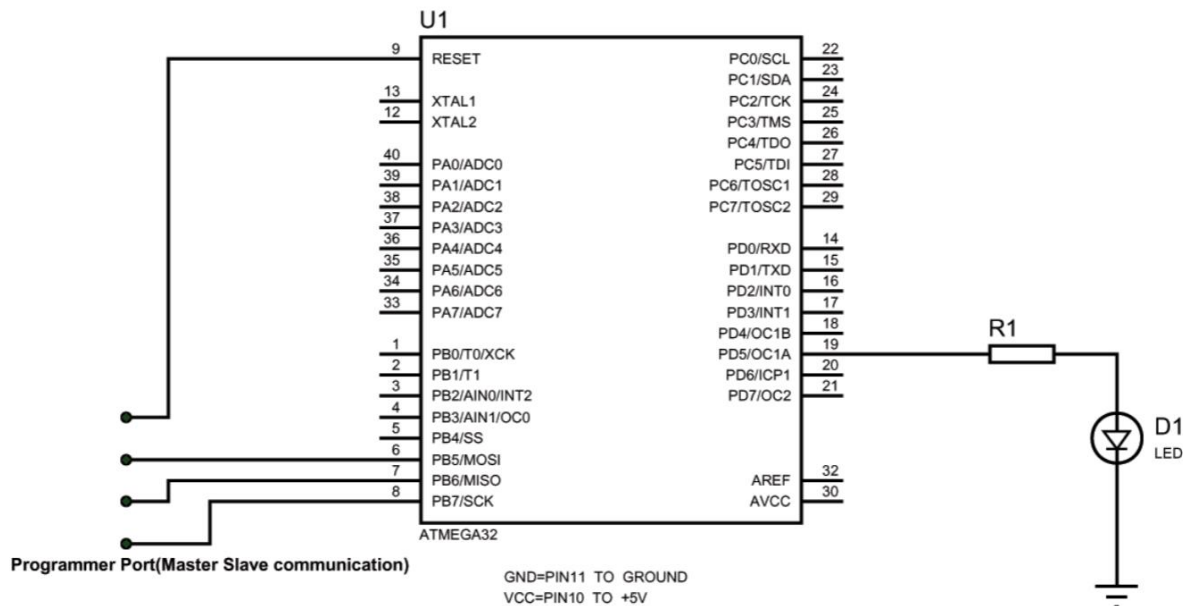Reza Mansouri - 972023033

Microprocessors Laboratory

Exercise 1

Question 3:

*Describe **Pull-Up Resistor** and determine its value in the circuit below.*

Answer:

Pull-Up resistor – sometimes referred to as Pull-Down based on the circuit – works as a noise canceler. There are different electro-magnetic waves around the microcontroller which may induce current into its pins. Therefore, by putting a pull-up resistor into work, along with a ground wire or a power source, it is promised that the intended pin, will have the desired bit value.

Resistors have a more general purpose. They are used to prevent devices, such as LEDs, being burnt due to extraordinaire currents.

About the circuit, by using the formula $R = \frac{V_S - V_F}{I_S}$ the R1 value can be calculated easily. If $V_S = 10\text{V}$, $V_F = 5\text{V}$ and $I_S = 50\text{mA}$, R would be 100Ω.