Lab 5

Q 1: Using interrupts, design an 8051 furnace controller that keeps a building at 20 C +/-1 C. The furnace ON/OFF solenoid is connected to P1.7 such that if P1.7 = 1 then furnace is on, else furnace is off. Temperature sensors are connected to INT0 and INT1. Connect push button 3 and 2 to pin P3.2 and pin P3.3 for external interrupts. If INT0=0 then T > 21C, if INT1=0 then T<21 C. Write a program which turns the furnace on for T<19C and turns it off for T>21 C.

Simulate your program using Proteus.

Then program your cards and observe the execution.

Q 2: Connect push button 3 to pin P3.5 for timer 1. Write and run a program for counter/timer 1 to count up from 00 to a maximum of 255 (FFH) as each pulse is fed into the 8051. Add your counter program new code to show count value on LEDS.

Simulate your program using Proteus.

Then program your cards and observe the execution.