Lab #05 PLC & HMI Traffic Light. JD Jones

Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Point Value = 100 points

This lab will have you programming a traffic light system. Something you use everyday when you drive. The basis to any stoplight system is timers. We would use what is called cascading timers where the second timer is triggered off of the first. I like to tell people to build the foundation first then build the walls of the house. The foundation is going to be a series of 3 timers cascading one another. Get this working first then move onto the second portion of this lab. You don’t have to worry about descriptions or rung comments on the first 2 portions of this lab.

**1st portion!**

| Timer 1 | Timer 2 | Timer 3 |
| --- | --- | --- |
| 12 seconds | 8 seconds | 4 seconds |
| Red light | Green light | Yellow light |

Now that you figured out how to cascade timers let’s kick it up a little.

**2nd portion!**

| Timer 1 | Timer 2 | Timer 3 | Timer 4 |
| --- | --- | --- | --- |
| 8 seconds | 4 seconds | 8 seconds | 4 seconds |
| North South Red light | N/S Red light | N/S Green light | N/S Yellow light |
| East West Green light | E/W Yellow light | E/W Red light | E/W Red light |

On the 3rd portion of the lab you need to describe the components and rungs. For this lab only I will accept Timer 1, Timer 2 etc for the timers descriptions only. The rung description can give an overall snapshot of what the lights are doing. Make sure to describe the lights as north/south and east/west rather than red light 1 and red light 2.

**3rd portion!**

| Timer 1 | Timer 2 | Timer 3 | Timer 4 | Timer 5 | Timer 6 |
| --- | --- | --- | --- | --- | --- |
| 8 seconds | 4 seconds | 1 second | 8 seconds | 4 seconds | 1 second |
| North South Red light | N/S Red light | N/S Red light | N/S Green light | N/S Yellow light | N/S Red light |
| East West Green light | E/W Yellow light | E/W Red light | E/W Red light | E/W Red light | E/W Red light |

Counter added to the 3rd portion. Have a different light turn on when a button is pressed 5 times.

Points for

a) First program works 15 pts

b) Second program works 20 pts

c) Third program works 40 pts

d) Descriptions of third program only 15 pts

e) Counter 10 pts

INSTRUCTOR’S INITIAL\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_