

TEJ3M – Sample Test Questions

Question 1 – Four way traffic light

- Create a four way traffic light (red/yellow/green in each direction)
 - o The lights should follow the following pattern:
 - Green – 5 seconds
 - Yellow – 2 seconds
 - All red – 1 second
 - o Add a button (with pull-down), and as soon as the button is pressed, instantly force the current green light to begin changing to yellow, then red.
 - Ex: Currently East/West is green, with North/South as red
 - Button is pressed
 - East/West changes to yellow
 - Two seconds pass
 - East/West changes to red
 - One second passes
 - North/South changes to green, etc
 - o Remember! The two lights of each colour for each direction are the same, so you can wire them together (both North/South green lights are the same, etc)

Question 2 - Recreate the tail light sequence on a Mustang

- The setup: Three red LEDs on the left, three red LEDs on the right, and two buttons (with pull-downs). See diagram for details
- When SW1 is pressed:
 - o This is left turn
 - o LEDs should flash in sequence
 - D3→D2→D1
 - D3→D2→D1, etc
 - o LEDs should be 50% brightness
- When SW2 is pressed:
 - o This is right turn
 - o LEDs should flash in sequence
 - D4→D5→D6
 - D4→D5→D6, etc
 - o LEDs should be 50% brightness
- When both SW1 and SW2 are pressed:
 - o This is brake
 - o All LEDs should illuminate at full brightness without flashing a sequence

