Timer and Counter

1. Prepare a PLC program that would require the start button (non-latching type) to be pressed and held for 5 seconds before the motor would run. If the start button is released before 5 seconds the motor will not run.

2. Prepare a PLC program that would require the stop button (non-latching type) to be pressed and held for 5 seconds before the motor would stop. If the stop button is released before 5 seconds the motor will not stop.

3. Prepare a PLC program that would automatically stop the motor and turn on an orange lamp when the motor reached accumulative 60 seconds run time. Add a reset push button to resume normal operation.

4. **Star Delta Connection** (NO, NC, Output & Timer).

   Inputs - start button, stop button (non-latching)

   Outputs – main coil, motor on lamp, start coil and lamp, delta coil and lamp.

   - When start button is pressed, main coil, motor on and start coil lamps are on.
   - After 10 seconds main coil still on, motor on lamp still on, delta coil is on lamp and star coil and lamp is off.
   - When stop button is pressed, all outputs are off.

5. **Valve Control** - (NO, NC, Output & Timer).

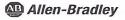   Inputs - start button, stop button (non-latching)

   Outputs - inlet valve, mixer motor, outlet valve.

   - (1)When a start button is pressed, inlet valve is open for 10 seconds then return to close.
   - (2)Then mixer is on for 15 seconds then stop. (only one output is on at a time)
   - (3)Then outlet valve is on for 5 seconds (Repeat sequence 123123123123…………..).

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- When stop button is on then all outputs are off.

6. Building Automation (NO, NC, Output & Timer).

Inputs - start button, stop button (non-latching)

Outputs (six lights) - L1, L2, L3, L4 , parking light, exit light.

- When start button is pressed, all six lights are on.
- When stop button is pressed, then 4 lights L1, L2, L3 & L4 are off.
- The parking light is off after 12 seconds when stop switch is pressed.
- An exit door light is off after 10 seconds when parking light is off.

7. Light Control (NO, NC, Output & Timer).

Inputs – start button, stop button (non-latching)

Outputs – red lamp, green lamp, orange lamp

- When start button is pressed, red lamp is on for 5 seconds then off.
- Then green lamp should be on for 5 seconds then off.
- Then orange lamp should be on for 5 seconds then off.
- Repeat sequence (Red, Green, Orange, Green, Red, Green, Orange………………)
- When stop button is pressed anytime, then all output should be off.