

PLC - Exercise Sheet no.2

Problem no.1:

A system consists of a single load, a red lamp and a yellow lamp with START and STOP pushbuttons. It is required to develop a PLC program to control this system in the following manner:

- When the START pushbutton is pressed the load is activated. To deactivate the load the STOP pushbutton should be pressed while the load is active. When the load is deactivated, by pressing the STOP pushbutton, the yellow lamp should be turned ON for 30 seconds. During this period the load cannot be restarted. After this delay, the yellow lamp should be turned OFF and the load can be started by pressing the START pushbutton.
- If the load remains active for 10 minutes and the STOP pushbutton has not been pressed the load should be automatically deactivated and the red lamp is turned ON. The red lamp should remain ON for 3 minutes. During this period the load cannot be restarted. After this delay, the red lamp should be turned OFF and the load can be started by pressing the START pushbutton.

Problem no.2:

A system consists of a single load, a yellow lamp and a red lamp with a single START/STOP pushbutton. It is required to develop a PLC program to control this system as follows:

- While the load is not active, and the red lamp is OFF, pressing the START/STOP pushbutton activates the load.
- While the load is active, if the START/STOP pushbutton is continuously pressed without interruption for 5 sec. the load is deactivated. The yellow lamp should be turned ON, when the START/STOP pushbutton is pressed while the load is active and turned OFF when the START/STOP pushbutton is released. After the load is deactivated, the red lamp should be turned ON for 10 seconds. During this delay the load cannot be started.

Problem no.3

The control panel of an indicator has: STEADY, FLASH and STOP push-buttons.

- * When the STEADY push-button is pressed the indicator is turned ON.
 - * IF the FLASH push-button is pressed while the indicator is ON steadily, it will start to flash (0.5 sec OFF and 1 sec. ON). Pressing the FLASH push-button while the indicator is OFF should have no effect.
 - * If the STEADY push-button is pressed while the indicator is flashing, it becomes ON steadily.
 - * When the STOP push-button is pressed while the indicator is ON steadily or flashing, the indicator is turned OFF.
-