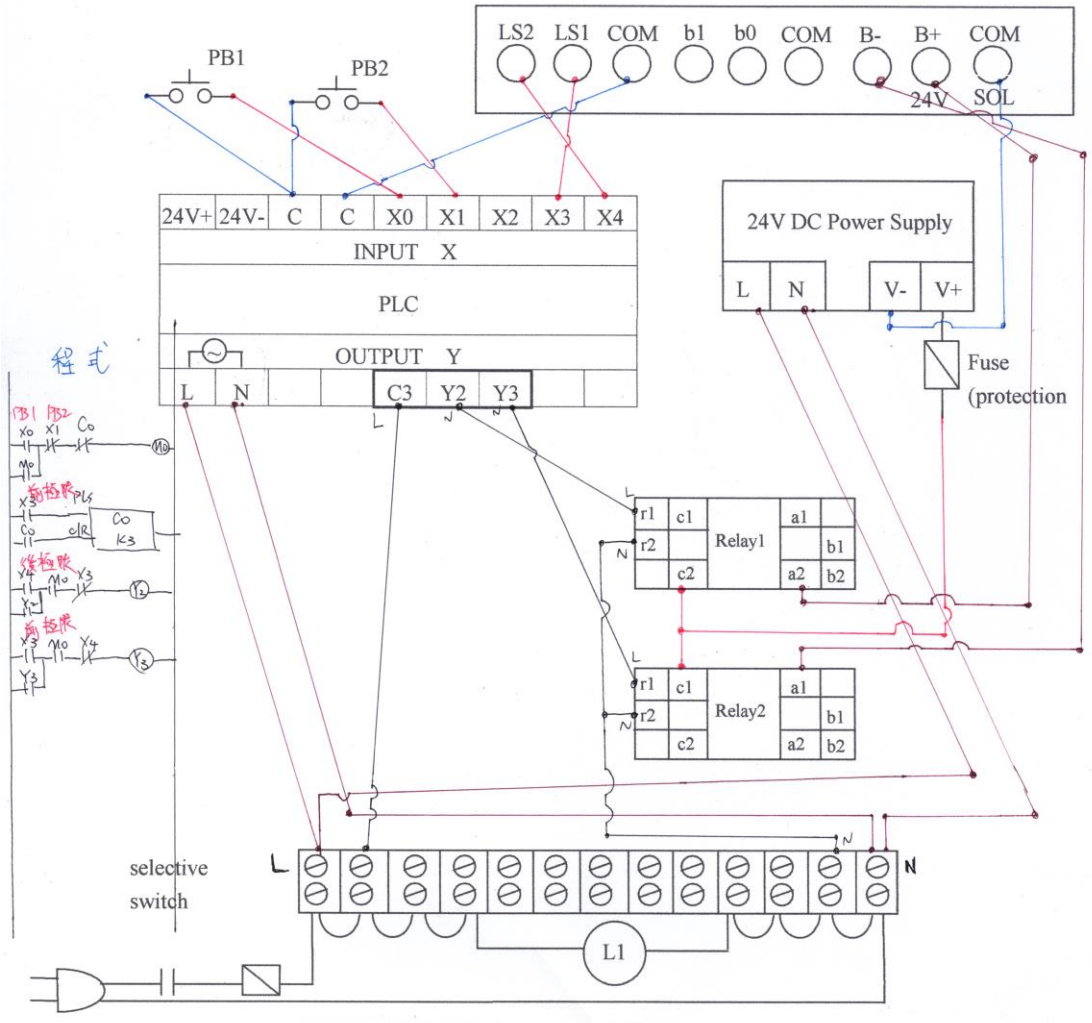
Final Exam Student ID #: Name:

| start time (A) | | finish time (B) | | time used in minutes (B-A) | |
|---|---|---|---|---|---|

The figure below shows one PLC, two push button switches PB1 and PB2, two Relays, one 24V DC power supply, and one double-solenoid-valve piston module. L1 is an indicator of AC power supply.

Please read the course material "class note part 6 PLC on solenoid valve control" posted on My e-learning platform for the usage and programming of the double-solenoid-valve piston module.

1. Connect all the elements into a control system and draw the connection on the below figure.
2. Write one PLC program to control the piston to move out and back 4 times then stop.

Table 1

| Element | PB1 Green | PB2 Red | LS1 | LS2 | Relay 1 | Relay 2 |
|---|---|---|---|---|---|---|
| Contact | X0 | X1 | X3 | X4 | Y2 | Y3 |