Title: **PLC Basics** Test: 1

Course: Introduction to Automation Unit: Introduction to PLC CLO: 1

Name ANSWER KEY Grade 25pts Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Objectives**

1. Student shall demonstrate comprehension basic functions of a PLC.
2. Student shall analyze a PLC program to determine the program’s functionality.

**Assessment**

Students shall demonstrate a comprehension of the objectives listed above by scoring a minimum of 75% on this Test. Grading shall be based on the instructor answer key.

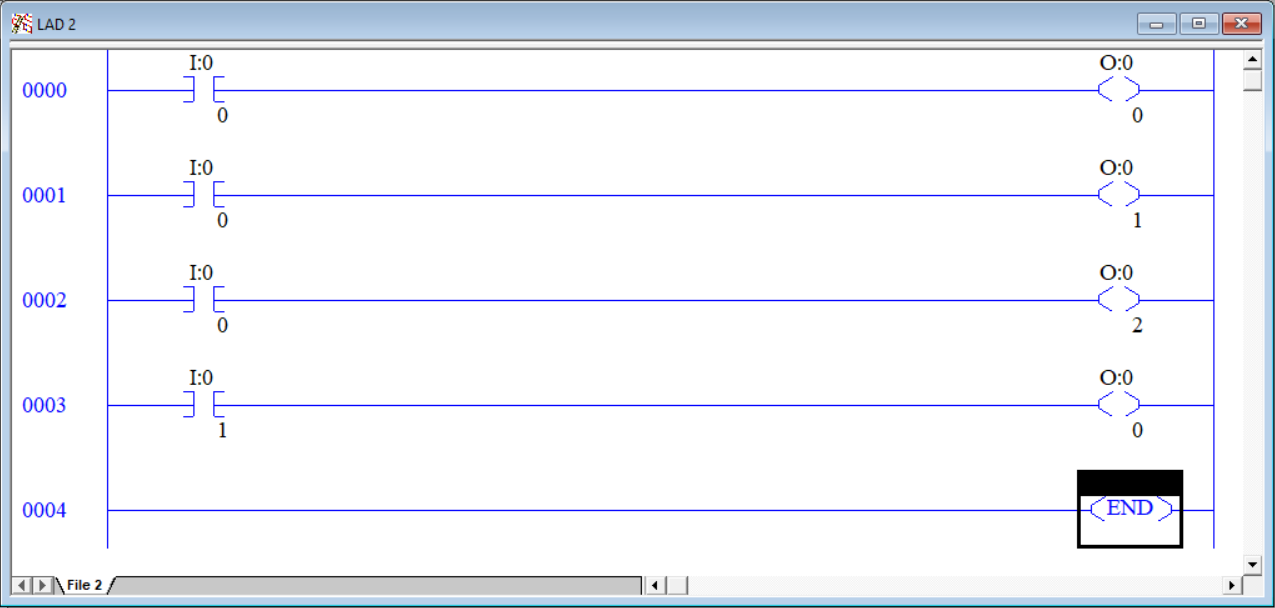
**Instructions**

Select the best answer for each multiple-choice question below.

1. How many instructions can the MicroLogix 1100 PLC perform at any one time?
   1. 4
   2. 3
   3. 2
   4. 1
2. What does the three-letter acronym, PLC mean?
   1. Programmable Ladder Computer
   2. Proportional Logic Controller
   3. Programmable Logic Controller
   4. Programmable Ladder Controller
3. Between inputs and outputs, what actually controls final control elements in the field?
   1. Inputs
   2. Outputs
   3. Both
   4. Neither
4. How are the inputs to a PLC protected?
   1. Through a fuse
   2. Through a resettable circuit breaker
   3. Through an LED and photo transistor
   4. Through a current limiting zener
5. What component is used to relay an output signal?
   1. A coil
   2. A dry contact
   3. An LED and photo transistor
   4. A current limiting Zener
6. A collection of \_\_\_\_\_ makes up a word.
   1. Places
   2. Binaries
   3. Bits
   4. Variables
7. The MicroLogix 1100, our classroom PLC, supplies power to the final control elements.
   1. True
   2. False
8. A word has \_\_\_\_ places.
   1. 1
   2. 4
   3. 8
   4. 16
9. The binary number system has how many digits?
   1. 1
   2. 2
   3. 8
   4. 10
10. Why is the binary number system used for motor control/ladder logic?
    1. It’s simple
    2. It has only two states
    3. It’s not used for motor control logic
    4. None of the above
11. List the order of operation of a PLC.
    1. Scan inputs, write outputs, evaluate ladder logic
    2. Evaluate each rung reading inputs and driving outputs that are in the rung.
    3. Scan input, evaluate ladders logic, write outputs
    4. Inputs, logic and outputs are all read/evaluated/written in parallel at the same time.
12. Input addresses start with the letter I
13. Output addresses start with the letter O
14. Internal memory bits start with the letter B
15. Review the previous three answers. Describe the difference between each address type. (5pts)

Inputs and outputs are tied to physical components in the field. Binary (B) addresses are for internal use only.

1. Describe the problem with the ladder logic below. (5pts)



Output O:0/0 is used twice. Since that last rung assigns I:0/1 to O:0/0, that is the rung that will ultimately control O:0/0. Rung 0000 will have no effect on the output.