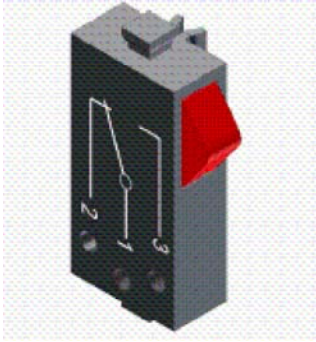## POE Practice Test - Control Systems

Multiple Choice
Identify the choice that best completes the statement or answers the question.

1. If electrical wires are connected to ports 1 and 2 on the switch above, then the switch will be wired normally-_____.



   a. common
   b. closed
   c. open
   d. neutral

2. Which of the following digital control devices processes the input information from sensors?
   a. Microprocessor
   b. Variable Resistor
   c. Algorithm
   d. Flowchart Program

3. The difference between an open- and closed-loop system is open-loop systems do not have _____.
   a. an input
   b. a process
   c. feedback
   d. an output

4. Which of the following input devices can be used to help a computer identify the color of a glass marble?
   a. Reed Switch
   b. Photoresistor
   c. Electromagnet
   d. Lamp

Problem

5. The closed-loop program shown below is designed to control a light using a digital switch. Study the program description and decide which of the icons from the answer bank (A through F) must be used to complete the flowchart program. Write the letter of the correct icon in the proper empty box. No icon will be used more than once, and some may not be used at all.

   Program Description:
   When the program starts, lamp (M1) is turned ON, and the computer checks to see if the switch (I1, wired normally open) is being pressed. The program will loop back until the switch is pressed. When the switch is pressed, the value of variable A will be incremented by 1. The computer will then wait 0.2 seconds before checking the value of variable A to see if it is greater than or equal to 13. If the value of variable A is less than or equal to 12, the program will loop back to the beginning. If variable A is greater than or equal to 13, the lamp will turn OFF and the program will end.
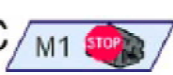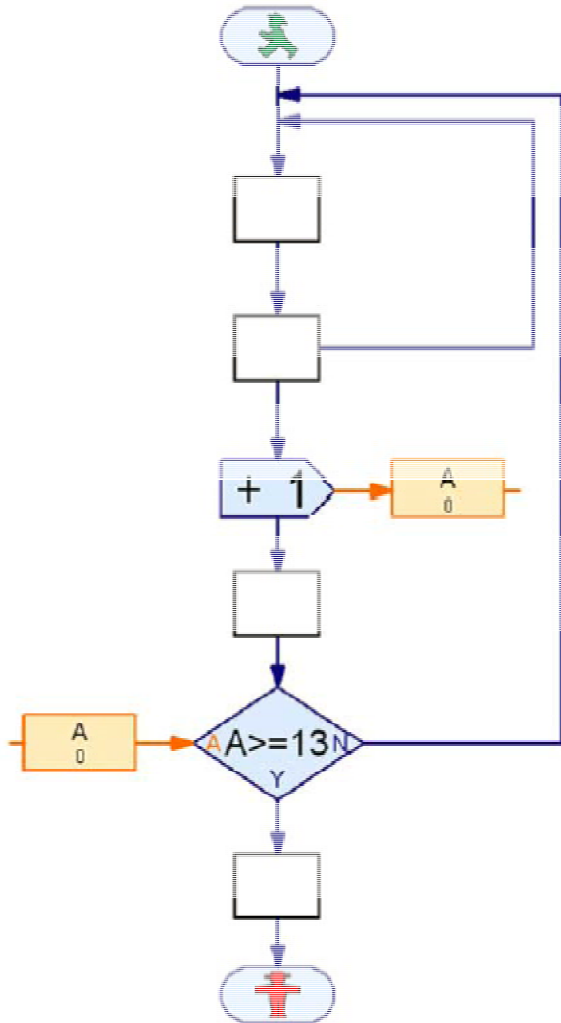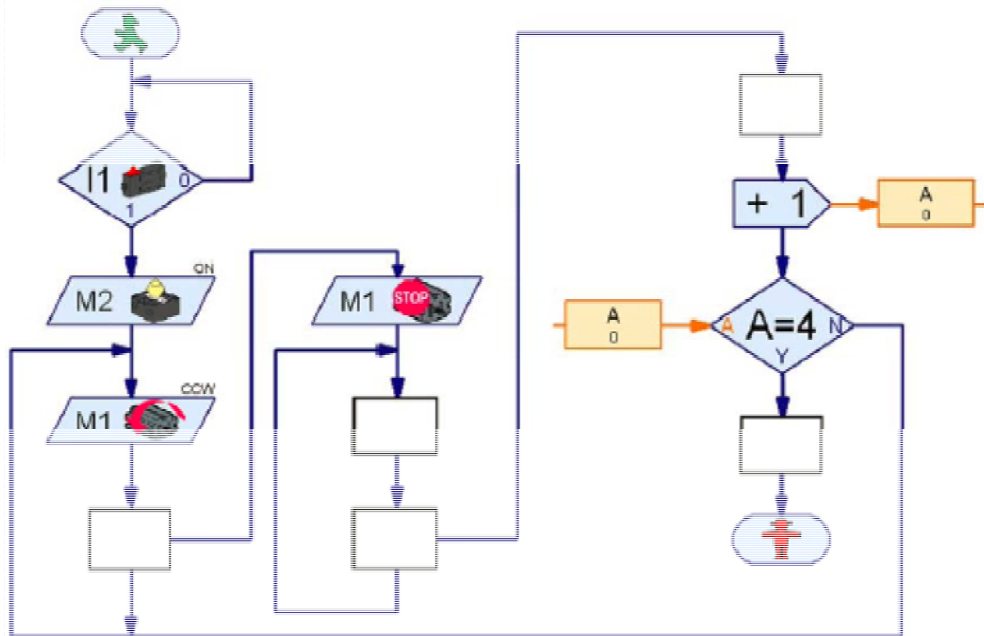
6. The closed-loop program shown below is designed to control a light and shuttle motor. Study the program description and decide which of the icons from the answer bank (A through I) must be used to complete the flowchart program. Write the letter of the correct icon in the proper empty box. No icon will be used more than once, and some may not be used at all.

Program Description:
When the program starts, the computer waits for a start switch (I1, wired normally-open) to be pressed. When the start switch is pressed a lamp (M2) is turned ON, and a shuttle (M1) moves toward limit switch #1 (I2, wired normally-closed). When limit switch #1 is contacted the shuttle stops and reverses direction toward limit switch #2 (I3, wired normally-open). When limit switch #2 is contacted, the shuttle stops, and the value of variable A will be incremented by 1. The computer will then check the value of variable A to see if it is equal to 4. If the value of variable A is less than 4, the program will loop back and the shuttle will complete another back-and-forth cycle between the two limit switches. After 4 cycles, the lamp will turn OFF and the program will end.