

Control Engineering 1

Course Code: CSE 3116

Quiz 000 — Intro Quiz

Name: _____

Sec: _____

- Imagine you are in a cabin in front of a small fire on a cold winter evening. You feel uncomfortably cold, so you throw another log into the fire. In this scenario, the **process variable** is temperature. Is this true or false?
A. **True** B. False
- If the level of a liquid in a tank must be maintained within 5 ft of 50 ft, what is the liquid's **set point**?
A. 45 ft B. 55 ft C. 5 ft D. **50 ft**
- A **load disturbance** is an undesired change in one of the factors that can affect the set point. Is this statement true or false?
A. **True** B. False
- Under what circumstances does an open control loop exist? **Select all options that apply.**
A. Process variable is measured and compared to a set point B. Process variable is measured C. **Action is taken without regard to process variable conditions** D. Action is taken with regard to process variable conditions
- Which one of these is not considered as an example of **primary element/sensors** in process control? **Select all options that apply.**
A. Resistance Temperature Detectors B. Thermocouples C. **Control Valve** D. Pilot tubes
- Primary elements** will not make direct contact with the process fluid. Is this statement true or false?
A. True B. **False**
- A **transmitter** is a device that converts a reading from a transducer into a standard signal and transmits that signal to a monitor or controller. Is this statement true or false?
A. **True** B. False
- Which of the following are examples of a **digital signal**? **Select all options that apply.**
A. **Profibus** B. 4 - 20 mA C. 3 - 15 psig D. 1 - 5 v
- Which of the following have the ability to receive input, to perform a mathematical function with the input, and produce an output signal?
A. Actuators B. Transmitters C. Transducers D. **Controllers**
- Which of the following variables are not commonly measured or monitored in process control applications?
A. Pressure B. **Viscosity** C. Temperature D. Flow rate
- 4-20 mA is the most common standard analog signal used in the process control industry today. Is this statement true or false?
A. **True** B. False
- Match each term to its correct definition.

(1) Load disturbance	(B)	(A) The factor that is changed to keep a measured variable at set point.
(2) Control algorithm	(E)	(B) An undesired change in a factor that can affect the process variable.
(3) Manual control	(D)	(C) A value or range of values for a process variable that must be maintained to keep the process running properly.
(4) Manipulated variable	(A)	(D) A control operation that directly involves human action.
(5) Set point	(C)	(E) A mathematical expression of a control function

- _____ is a continuing error due to the inability of a control system to keep the measured variable at set point.
A. Load disturbance B. **Offset** C. Pressure D. Temperature
- Match each term to its correct description.

(1) Closed-loop, automatic control	C	(A) An operator turns off the heater coil when the temperature transmitter outputs a certain reading.
(2) Closed-loop, manual control	A	(B) A controller turns off the heater coil at set intervals, regardless of the process temperature.
(3) Open-loop, automatic control	B	(C) A temperature sensor measures process temperature, sends the result to a controller to compare to the set point, and the controller turns off the heater coil.

- Match the signal type in Column A with its example/application in Column B.

(1) Analog signal	C	(A) 3 - 15 psig
(2) Pneumatic signal	A	(B) Fieldbus, Profibus and Modbus
(3) Digital signal	B	(C) 4-20 mA and 1 - 5 V