

TC10 - Pre-Instructional Survey

Name: _____ Date: _____

1. What is the purpose of troubleshooting? _____

2. The first step in troubleshooting is to:
 - a. Put the controller in manual
 - b. Identify and locate the problem.
 - c. Verify that something is wrong.
 - d. Verify the problem is fixed.
 - e. Fix the problem

3. The last step in troubleshooting is to:
 - a. Fix the problem.
 - b. Verify that something is wrong.
 - c. Verify that the problem is fixed.
 - d. Follow-up to prevent future problems.
 - e. Verify good controller tuning

4. Select the one component that is not required in a feedback control loop:
 - a. Controllers.
 - b. Transmitters.
 - c. Final Control Elements.
 - d. Transducer
 - e. Sensor

5. Standard analog instrument current signal is:
 - a. 1 to 5 mA.
 - b. 0.25 to 1.25 mA.
 - c. 4 to 20 mA.
 - d. 3 to 15 mA
 - e. 3 to 27 mA

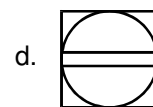
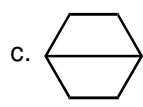
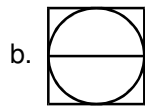
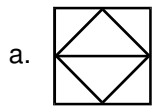
6. Standard analog instrument pneumatic signals are:

- a. 1 to 5 psig (6.9 to 34.5 kPa gage).
- b. 4 to 20 psig (27.6 to 137.9 kPa gage).
- c. 3 to 15 psig (20.7 to 103.4 kPa gage).
- d. 0 to 20 psig (0 to 137.9 kPa gage).
- e. 6 – 30 psig

7. From ANSI/ISA-5.1-1984, “Instrument Symbols and Identification:” The line symbol ----- denotes a:

- a. Digital Signal
- b. Mechanical link.
- c. Electrical signal
- d. Pneumatic signal
- e. Hydraulic signal.

8. Which of the following symbols from ANSI/ISA-5.1-1984, “Instrument Symbols and Identification” is used to indicate shared display, in an auxiliary location accessible to the operator?



9. A _____ control system evolved from central computer control of the 1960s and was developed initially for continuous flow processes that required loop, analog, and limited discrete control.

- a. DDC
- b. Supervisory
- c. PLC
- d. DCS
- e. FF

10. A _____ is a microcomputer-based control device that was originally designed to replace relay logic in the automotive industry.

- a. DDC
- b. PC
- c. DCS
- d. PLC
- e. FF

Answer the following as True or False.

- ___ 11. With respect to HART and FF, the term DD usually refers to Direct Digital
- ___ 12. HART means “highway asynchronous remote transmitter”.
- ___ 13. HART is considered to be the first all digital protocol used for field communication.
- ___ 14. HART has “asset management” capabilities.
- ___ 15. The major application of a valve positioner is for signal conversion.
- ___ 16. HART protocol was developed in the late 1980’s and the applications are still increasing.
- ___ 17. A disadvantage of HART is that the signal superimposed on the 4-20mA DC may distort the information from the process.
- ___ 18. The first all digital protocol used to connect field devices with a field control system and interoperability is Foundation Fieldbus.
- ___ 19. There is no 4-20mA involved with Foundation Fieldbus (FF).
- ___ 20. FF employs a multidrop system that can accommodate up to 32 devices per segment
- ___ 21. Both HART and FF are interoperable systems but not compatible with each other.

TC10 - Pre-Instructional Survey Answers

1. To confirm that a problem exists, to identify the problem, to restore proper operation.
2. c. Verify that something is wrong.
3. d. Follow-up to prevent future problems.
4. d. Transducer
5. c. 4 to 20 mADC.
6. c. 3 to 15 psig (20.7 to 103.4 kPa gage).
7. c. Electrical signal
8. d.
9. d. DCS
10. d. PLC
11. F
12. F
13. F
14. T
15. F
16. T
17. F
18. T
19. T
20. T
21. T