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?

   ![Symbol Options]

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 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