FG07 - Pre-Instructional Survey

Name: _____   Date: _____

1.   Which type of drawing provides detailed piping and process information, in
      addition to instrumentation and control information?

      a. Piping and Instrument Diagrams (P&IDs)
      b. Loop Wiring Diagrams
      c. Wiring Schedules
      d. SAMA Diagrams

2.   Which variable does the control system attempt to hold at a constant value?

      a. Final Control Element
      b. Manipulated Variable
      c. Controlled Variable
      d. Disturbance

3.   In which of the following types of processes is material first added to a vessel,
      some operation takes place, and then material is removed from the vessel?

      a. Batch
      b. Open Loop
      c. Continuous
      d. Discrete Parts

4.   If a standard electronic pressure transmitter has a range of 50 to 250 psig (345 to
      1724 kPa gage), and the pressure is 150 psig (1034 kPa gage), what is the
      output in mA?

      a. 4.0 mA
      b. 12.0 mA
      c. 13.6 mA
      d. 50.0 mA

5.   Which level measurement is based on the weight of the liquid?

      a. Ultrasonic
      b. Radioactive
      c. Capacitor Probe
      d. Pressure transmitter

6.   Which of the following is a measurement unit for volumetric flow measurement?

     a. Pounds per hour
     b. Gallons per minute
     c. Kilograms per hour
     d. Pounds per minute

7.   Which of the following flow measurement devices requires square root extraction?

     a. Orifice plate
     b. Coriolis flowmeter
     c. Magnetic flow meter
     d. Vortex shedding flowmeter

8.   Which of the following temperature measurement devices is based on change in resistance with temperature change?

     a. RTD
     b. Thermometer
     c. Thermocouple
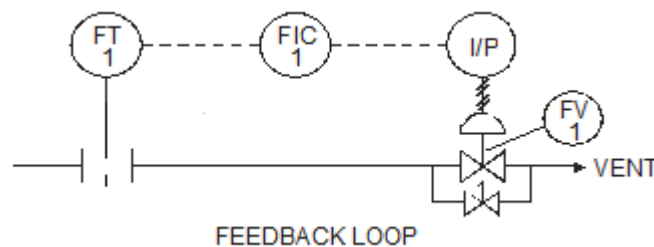   d. Bimetallic element

9.   Which of the following is an example of a Final Control Element?

     a. Damper
     b. Transducer
     c. Transmitter
     d. Manipulated variable

10.   Which of the following types of valves has the highest gain when the valve is nearly closed?

     a. Equal percentage
     b. Quick opening
     c. Fail open
     d. Linear

11.   A controller in which an increase in output to the manipulated variable results in a decrease in the controlled variable is called?

     a. Reverse acting
     b. Direct acting
     c. Non-linear
     d. Fail safe

12. Which of the following control modes causes the controller output to increase or decrease at the same time the input increases or decreases?

   a. Proportional
   b. Derivative
   c. Integral
   d. Reset

13. Which of the following terms describe a control strategy in which the output of one controller is used to manipulate the setpoint of another controller?

   a. Ratio
   b. Fail safe
   c. Cascade
   d. Feedforward

14. Which of the following types of control systems is typically programmed in ladder logic:

   a. Programmable Logic Controllers (PLC)
   b. Single Loop Digital Controllers (SLDC)
   c. Distributed Control Systems (DCS)
   d. Analog Electronic Controllers

15. You are calibrating an electronic D/P transmitter. The positive terminal of the transmitter should be connected to the:

   a. negative terminal of the power supply
   b. positive terminal of the power supply
   c. positive terminal of the multimeter
   d. positive terminal of an ohmmeter

16. When performing a zero-based calibration on a D/P transmitter, the low pressure port of the transmitter:

   a. should be closed
   b. should be vented to the atmosphere
   c. should be connected to a 2.04 "Hg vacuum source
   d. should be connected to the high pressure air supply

17. During a calibration, you notice that the "as found" measurements are always 5% less than the "ideal" measurement. This is an example of:

    a. hysteresis
    b. span error
    c. non-linearity
    d. zero shift error

18. When checking accuracy of a type-J thermocouple, using a temperature calibrator, the white thermocouple wire should be attached to the:

    a. negative input of the calibrator
    b. positive input of the calibrator
    c. negative output of the calibrator
    d. positive output of the calibrator

FEEDBACK LOOP

19. From the figure above, the output of FT-1 is a(n):

    a. electric signal
    b. hydraulic signal
    c. pneumatic signal
    d. capillary signal

20. From the figure above, FIC-1 is a:

    a. controller
    b. flow meter
    c. control valve
    d. floppy integrated circuit

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1. a
2. c
3. a
4. b
5. d
6. b
7. a
8. a
9. a
10. b
11. a
12. a
13. c
14. a
15. b
16. b
17. d
18. b
19. a
20. a