

TI06 - Pre-Instructional Survey

Name: _____ Date: _____

1. In creating a P & ID the line symbol for a pneumatic connection would be:
 - a. - - - -
 - b. // //
 - c. _____
 - d. -○-○-

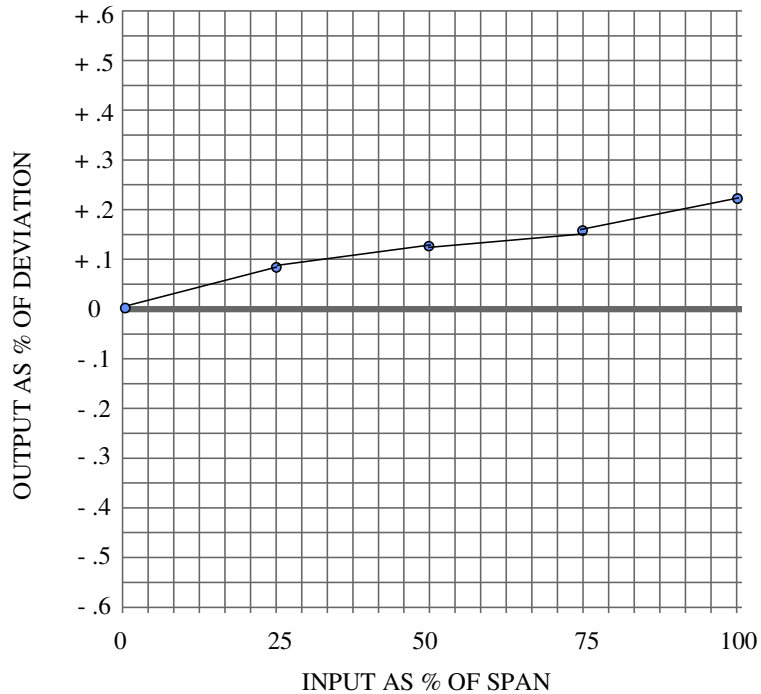
2. According to ISA Standard S7.0.01, the maximum size for any particles suspended in instrument air is _____ micrometers (1 micrometer = 0.000001 meter).
 - a. 2
 - b. 10
 - c. 40
 - d. 100

3. A device within an instrument air system that provides cleaning of the airstream by removing particulate matter from the dryer discharge is the _____.
 - a. aftercooler
 - b. separator
 - c. compressor
 - d. afterfilter

4. Which of the following elements is designed to translate a pressure change to motion, with the motion being used to move an indicator or initiate a pneumatic signal?
 - a. bellows
 - b. bourdon tube
 - c. diaphragm
 - d. all of these

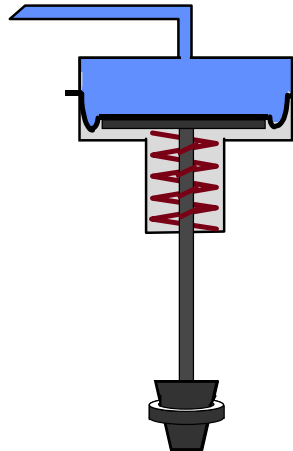
5. A pneumatic transmitter that uses a mechanism which generates a signal by opposing forces rather than by palpable motion of its parts is categorized as a _____ transmitter.
- a. force-balance
 - b. motion-balance
 - c. torque-balance
 - d. rotary balance
6. If the range associated with an instrument is 3-15 psig, the span is _____psig.
- a. 12
 - b. 14
 - c. 16
 - d. 30
7. The range associated with an instrument is 20 to 100 kPa and the span is _____ kPa.
- a. 20
 - b. 40
 - c. 60
 - d. 80
8. The instrument performance term _____ can be defined as the degree of conformity of an indicated value to a recognized accepted standard value or ideal value. It is probably the most common term used by instrument manufacturers and implies closeness to a true value.
- a. precision
 - b. repeatability
 - c. quality
 - d. accuracy

9. An example of a _____ error is seen on the following calibration graph.
- span
 - zero
 - linearity
 - hysteresis



10. An I/P converts:
- voltage to current
 - current to voltage
 - air pressure to current
 - current to air pressure
11. The most frequent malfunction to be expected in a pneumatic transmitter is a _____.
- leaking air line
 - plugging of the nozzle restrictor
 - power failure
 - rupture of the bellows

12. A positioner is a device that:
- positions the actuator input port to align with the pilot.
 - acts as a moveable diaphragm toward the output.
 - causes the valve stem to align with signal input.
 - drives the actuator relief valve negative.
13. The most common pneumatic analog signal is:
- 3 to 27 psi (20 to 180 kPa)
 - 3 to 15 psi (20 to 100 kPa)
 - 6 to 30 psi (40 to 200 kPa)
 - 3 to 30 psi (20 to 200 kPa)
14. The following drawing represents a direct-acting pneumatic actuator. If there is a loss of power the valve will “fail” in the _____ position.
- open
 - closed
 - indeterminate
 - both a and b



15. When connecting a dip tube (bubbler) to measure open vessel levels, the pressure line to the dip tube is paralleled to the _____ side of the dP transmitter.
- supply side
 - datum line
 - high pressure
 - low pressure

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1. B
2. C
3. D
4. D
5. A
6. A
7. D
8. D
9. A
10. D
11. B
12. C
13. B
14. A
15. C