Register Number……

B.E. DEGREE EXAMINATIONS: APRIL/MAY 2012

Sixth Semester

ELECTRONICS AND INSTRUMENTATION ENGINEERING

EIE109: Industrial Instrumentation - II

Time: Three Hours **Maximum Marks: 100**

Answer All Questions:-

PART A (10 x 1 = 10 Marks)

1. _____ is used for low pressure measurement.
   a) Bellows b) Capsules c) Diaphragm d) Manometers
2. _____ is the type of elastic type pressure gauge.
   a) Float manometer b) Micromanometer
   c) Ring balance manometer d) Bourdon tube
3. Orife plate is a type of _____.
   a) Mechanical b) Inferential c) Electrical d) Pneumatic
4. The flow meters inserted in the pipelines causes a _____.
   a) ↑ in velocity and ↑ in pressure b) ↑ in velocity and ↓ in pressure
   c) ↓ in velocity and ↑ in pressure d) ↓ in velocity and ↓ in pressure
5. The nutating disk type meter has the temperature range of _____.
   a) 100 to 200ºC b) -150 to 120ºC c) 0 to 500ºC d) -150 to 0ºC
6. _____ is a type of inferential flow meters.
   a) Positive Displacement meter b) Nutating Disc type
   c) Oval gear type d) Turbine flow meter
7. _____ can be used as bidirectional meters.
   a) Ultrasonic flow meter b) purge flow regulators
   c) Doppler flow meter d) Electromagnetic flow meter
8. The difference between transmitted and reflected velocity in doppler flow meter is called _____.
   a) flow frequency b) flow velocity c) beat frequency d) beat velocity
9. _____ senses the difference in the thermal conductivity of the process materials.
   a) Bubbler system b) float switch
   c) thermal level sensor d) hydrostatic pressure sensor

10. If load is increased there are more steam bubbles and this causes the water to swell or rise. This effect is called _____.

a) shrinking b) metering c) floating d) swelling

PART B (10 x 2 = 20 Marks)

11. List the types of bourdon tube gauges.
12. State strain gauge pressure transducers.
13. Write the advantages and disadvantages of flow nozzle.
14. Define Stagnation point.
15. List the types of positive displacement meters.
16. List advantages and disadvantages of rotameter.
17. Write the limitations of electromagnetic flow meters.
18. What are the factors to be considered while selecting flow meters?
19. List the types of level measurement in industries.
20. List the electrical types of level measurement.

PART C (5 x 14 =70 Marks)

21. a) (i) Explain elastic type pressure gauges in detail. (8)

(ii) Discuss capacitive pressure transducer. (6)

(OR)

b) (i) Explain ionization gauge with a neat diagram. (7)

(ii) Explain how pressure gauge is calibrated with a Dead Weight Tester. (7)

22. a) With the neat sketch, explain venturi tube and orifice flow meter.

(OR)

b) Explain briefly with neat sketch, the working of the flow nozzle and Pitot Tube.

23. a) Explain nutating disk type and reciprocating piston type flow meters with neat sketch.

(OR)

b) Explain Variable area flow meter and Gyroscopic mass flow meter with neat sketch.

24. a) Explain the types of Electromagnetic flow meters with neat sketch.

(OR)

b) With the neat sketch, explain the principle, construction, applications and performance of Doppler flow meter.

25. a) (i) Explain with neat sketch, how the level is measured using differential pressure method. (7)

(ii) With the neat sketch, explain any one type of level measurement by electrical method. (7)

(OR)

b) Explain the construction and working principle of Displacer and Torque Tube type level measurement and Bubbler system.

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