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Question Paper Code: 35601

B.E. / B.Tech. DEGREE EXAMINATION, DEC 2020

Fifth Semester

Instrumentation and Control Engineering

01UIC501 - INDUSTRIAL INSTRUMENTATION - II

(Common to Electronics and Instrumentation Engineering)

(Regulation 2013)

Duration: 1.15 hrs

Maximum: 30 Marks

PART A - (6 x 1 = 6 Marks)

(Answer any six of the following questions)

- The device which is used for making temporary measurements of flow is
 - Venturi
 - Dull flow tube
 - Orifice plate
 - Pitot static tube
- Which type of orifice is not suitable for liquid and gas bubbles contain solid particles?
 - Concentric
 - Eccentric
 - segmental
 - Quadrant
- The torque on the turbine in mass flow meter is
 - $T = r^2\omega G$
 - $T = r^2\omega^2 G$
 - $T = r^2\omega G^2$
 - $T = r^2\omega^2 G^2$
- Which of the following flow meter maintains a constant pressure differential but varies the orifice area with flow
 - Turbine flow meter
 - Target flow meter
 - Rotameter
 - Pitot tube
- A flow meter that is independent of fluid density
 - Rotameter
 - Electromagnetic flow meters
 - Venturi meter
 - Orifice

6. The maximum operating temperature of Doppler flow meter is
 (a) 90°C (b) 100°C (c) 28°F (d) 303 K
7. Ultrasonic level measurement is not suitable for
 (a) Liquids (b) slurries
 (c) granular (d) interfaces
8. In nuclear radiation method of level measurement, the equation governing detector
 (a) $I = I_0 \exp(-\alpha d)$ (b) $I = I_0 \exp(\alpha d)$
 (c) $I = I_0 \exp(-\alpha / d)$ (d) $I = I_0 \exp(\alpha / d)$
9. Which property measures the resistance of a liquid to flow?
 (a) Density (b) Viscosity (c) Volume (d) Solubility
10. _____ hygrometer cell can be exposed only to gases.
 (a) Electrolytic (b) Capacitance
 (c) Inductance (d) Piezoelectric

PART – B (3 x 8= 24 Marks)

(Answer any three of the following questions)

11. Describe with neat sketches the principle of operation of an (i) an Orifice plate and (ii) Venturi tube as used in fluid flow measurement. (8)
12. Explain the principle, working, features and advantages of Coriolis mass flow meter in detail. (8)
13. Explain with neat sketches the construction and working of a electromagnetic flow meters. (8)
14. Discuss the construction, working, merits and demerits of capacitance level indicator and radiation level indicator. (8)
15. Write short notes on float type and optical type consistency meter. (8)