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**Question Paper Code : 21426**

B.E./B.Tech. DEGREE EXAMINATION, MAY/JUNE 2013.

Fifth Semester

Electronics and Instrumentation Engineering

EI 2303/EI 53/10133 EI 506 — INDUSTRIAL INSTRUMENTATION – II

(Common to Instrumentation and Control Engineering)

(Regulation 2008/2010)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Name three types of rate of flow meters.
2. What do you mean turbulent flow?
3. Define Reynold's number.
4. What are the two types of ultrasonic flow meter?
5. Define velocity head.
6. Which device is used for residential water service measurement?
7. What is a sight glass?
8. Name two commonly used electrical methods for measuring liquid level in industries.
9. Why is viscosity measurement important for industrial processes?
10. Define relative humidity.

PART B — (5 × 16 = 80 marks)

11. (a) (i) Explain the construction and working of an orifice plate and venturitube. (12)
- (ii) What are its advantages and disadvantages? (4)

Or

- (b) (i) Write notes on flow nozzles. (8)
- (ii) List the factors to be considered for installation of head flow meter. (8)

12. (a) What are mechanical flow meters and how many groups are they divided, explain any one positive displacement meter for flow measurement. (16)

Or

- (b) (i) Explain the construction and working of Thermal mass flow meter. (8)  
(ii) What are the steps to be followed during calibration of flow meter? (8)
13. (a) (i) Explain the principle used in electromagnetic type flow meter with neat diagram circuit and write its advantages and limitations. (10)  
(ii) What are the guidelines for the selection of flow meters? (6)

Or

- (b) (i) Explain with neat sketches, the construction, working, advantages and disadvantages of Laser Doppler anemometer. (12)  
(ii) Discuss about the source of errors in electrical type flow meter. (4)
14. (a) List non-contact type of level measurement system. Explain with neat sketch the working and construction of any two of them. (16)

Or

- (b) (i) Describe the working of Displacer type of level measurement. (10)  
(ii) Discuss about the level sensors selection and applications. (6)
15. (a) Describe the different methods used for measurement of Humidity. (16)

Or

- (b) Describe the different methods used for Moisture measurement. (16)