KUMARAGURU college of technology
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Register Number: …….

B.E DEGREE EXAMINATIONS : APRIL/ MAY 2016

(Regulation 2013)

Sixth Semester

ELECTRONICS AND INSTRUMENTATION ENGINEERING

U13EIT602 : Industrial Instrumentation-II

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

Answer all the Questions:-

PART A (10 x 1 = 10 Marks)

1. Identify the direct method of level measurement.
   a) Measure hydrostatic pressure b) Radiation method
   c) Electrical method d) Sight glass technique
2. If P is the pressure and ρ is the density, the level h is given by ---------
3. Flow nozzle is a variation of
   a) Venturi tube b) Orifice tube
   c) Pitot tube d) Dall tube
4. Water is pumped through a 150mm diameter pipe with a flow velocity of 3.5m/sec. The volumetric flow rate is ----------if the density of water is 1000kg/m^3.
5. ---------- is a not an inferential flow meters.
   a) Nutating disc flow meter b) Rotameter
   c) Piston flow meter d) Turbine flow meter
6. Turbine mass flow meter works on the principle of ----------
7. Dynamic weighing method is also called as _____.
   a) hydroweighing b) gravimetric method
   c) thermo-dynamic method d) none of the above
8. Level measurement based on differential pressure is referred as ----------
9. ---------- is a document containing specification and information of an instrument device.
   a) Instrument hook up diagram b) Process flow diagram
   c) Instrument data sheet d) Instrument loop diagram
10. Give P&I symbol for hydraulic signal line and safety valve.

PART B (10 x 2 = 20 Marks)

(Answer not more than 40 words)

11. How the float should be designed for level measurement?
12. List any two different methods for solid flow measurement.
13. Differentiate between orifice and venturi meter.
14. Define Bernoulli theorem.
15. Recall coriolis effect.
16. Why rotameter is called variable area flow meter?
17. Outline the factors to be considered for the selection of flow meter?
18. Write the working principle of target flow meter.
19. Define EMI.
20. How does a ground fault circuit interrupter work?

PART C (5 x 14 = 70 Marks)

(Answer not more than 400 words)

Q.No. 21 is Compulsory

21. Elaborate the principle of operation of any four types of positive displacement flow meter with neat sketches.

22. (a) (i) Discuss how boiler drum level is measured using hydrastep system with a neat diagram. (7)

(ii) Illustrate the construction and working principle of Displacer and Torque tube type level measurement with a neat diagram (7)

(OR)

(b) (i) Describe the operation of nuclear level detection system (7)

(ii) Draw the schematic of air purge system for level measurement and explain its operation. (7)

23. (a) Discuss the installation of head flow meter and piping arrangement for different fluids.

(OR)

(b) Review the construction and working principle of

(i) Orifice (8)

(ii) Pitot tube (6)

24. (a) With a neat sketch, describe the construction and working of Electromagnetic flow meter. Also explain the excitation schemes used in it.

(OR)

(b) (i) Briefly illustrate the working principle of ultrasonic flow meters. (8)

(ii) Discuss the working principle of vortex shedding flow meter. (6)

25. (a) (i) Descibe in detail about NEMA types of enclosures. (7)

(ii) Record how to prepare process documentation in detail (7)

(OR)

(b) (i) Bring out the classification of hazardous location in detail. (6)

(ii) Summarize the different protection methods for safety. Also compare the advantages and disadvantages. (8)

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