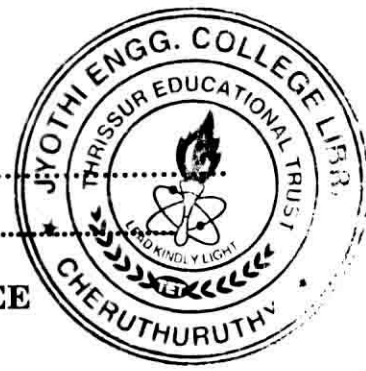


C 61467

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Name.....

Reg. No.....



**SIXTH SEMESTER B.TECH. (ENGINEERING) DEGREE
EXAMINATION, APRIL 2014**

AI 09 605—INDUSTRIAL INSTRUMENTATION

(2009 Scheme)

[Regular/Supplementary/Improvement]

Time : Three Hours

Maximum : 70 Marks

Part A

*Answer all questions.
Each question carries 2 marks.*

1. State Seeback effect.
2. What are factors governing selection of a material for RTD ?
3. Define pressure constant of an elastic pressure diaphragm.
4. What is a bridgman gauge ?
5. Why d.c. excitation is not permitted in electromagnetic flow meters ?

(5 × 2 = 10 marks)

Part B

*Answer any four questions.
Each question carries 5 marks.*

6. Explain the schematic arrangement of a diaphragm gauge.
7. A McLeod gauge has a volume V_B of 150 cm.³ and capillary diameter of 1.5 mm. Calculate gauge reading for a pressure of 40 μm of Hg (mercury).

$$\text{Given } P = \frac{ay^2}{V_B - a_y},$$

where p is pressure connected to the gauge.

8. Write short notes on multi function thermocouples and flow couples.
9. Derive the conditions such that a rotameter behaves as a linear instrument.
10. Mention the sources of error in a static pitot tube.
11. Explain level measurement using a capacitance type level gauge.

(4 × 5 = 20 marks)

Turn over

Part C

Answer one question from each module.

Each question carries 10 marks.

Module I

12. (a) Discuss the working principle of a total radiation pyrometer with a suitable sketch.

Or

- (b) State the laws of thermoelectricity. Discuss the working principle of a thermocouple.

Module II

13. (a) Explain the working of a bonded foil strain gauge pressure transducer.

Or

- (b) Explain the testing and calibration of pressure gauges using a dead weight tester.

Module III

14. (a) Explain in detail about turbine type flow meters.

Or

- (b) (i) Write short notes on Dall tube. (5 marks)

- (ii) Discuss the working of Coriolis mass flow meter. (5 marks)

Module IV

15. (a) Describe in detail about ultrasonic type level gauging system.

Or

- (b) Explain in detail about constant current type and constant temperature type hot wire anemometers.

[4 × 10 = 40 marks]