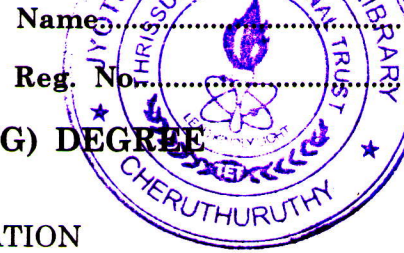


C 58378

(Pages 2)



**SIXTH SEMESTER B.TECH. (ENGINEERING) DEGREE
EXAMINATION, JUNE 2009**

AI 04 606—INDUSTRIAL INSTRUMENTATION

(2004 Admissions)

Time : Three Hours

Maximum : 100 Marks

Answer all questions.

- I. (a) What is the principle of expansion thermometers ? What are the advantages of bimetallic thermometers ?
- (b) What is thermopile ? Give an application of it.
- (c) Explain the basic principle of strain gauge pressure transducer.
- (d) What is ionization gauge ? Discuss the operating principle of it.
- (e) Explain the venturi tubes used for flow measurement.
- (f) Discuss the principle of electromagnetic flowmeters.
- (g) What is the principle of level gauge which uses thermal effects for measurement ?
- (h) Discuss the principle of ultrasonic level detectors.

(8 × 5 = 40 marks)

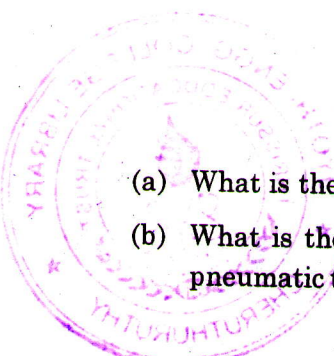
- II. (a) What is thermocouple ? Explain the principle of operation of thermocouple with neat diagram. (8 marks)
- (b) What are the advantages and disadvantages of thermocouple ? What are the different materials used for making thermocouple ? (7 marks)

Or

- (a) What is radiation pyrometer ? What are the applications is of it ? (5 marks)
- (b) With the help of necessary diagram explain optical pyrometers. (10 marks)
- III. (a) Discuss the method of pressure measurement using (i) LVDT-Bourden tube ; (ii) Strain gauge-bellows. (10 marks)
- (b) Discuss the basic principle of capacitive pressure transducer. (5 marks)

Or

Turn over

- 
- (a) What is thermal conductivity gauge ? Explain the basic operating principle. (7 marks)
- (b) What is the function of differential pressure transmitter ? Draw the basic schematic of pneumatic transmitter. (8 marks)

IV. (a) Explain the flow measurement by using rotameter. What are the materials used for making rotameter ? (8 marks)

- (b) Explain any *one* type of flowmeter based on positive displacement. (7 marks)

Or

- (a) Explain the working of orifice with the help of a sketch. (8 marks)
- (b) Draw the piping arrangement for measuring the flow rate of any fluid. (7 marks)
- V. (a) How are piezoelectric crystals used for measurement of fluid flow rate. (7 marks)
- (b) Draw and explain a capacitance type level gauge. (8 marks)

Or

- (a) Explain different float type gauges used for level measurement and control. (10 marks)
- (b) Differentiate between float type and displacer type level gauges. (5 marks)

[4 × 15 = 60 marks]