

G 1421

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Reg. No.....

Name.....

**B.TECH. DEGREE EXAMINATION, MAY 2016**

**Sixth Semester**

Branch : Applied Electronics and Instrumentation/Electronics and Instrumentation/  
Instrumentation and Control Engineering

AI 010 603/EI 010 603/IC 010 603—INDUSTRIAL INSTRUMENTATION—I (AI, EI, IC)

(New Scheme—2010 Admission onwards)

[Regular/Improvement/Supplementary]

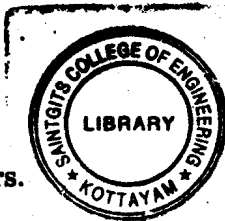
Time : Three Hours

Maximum : 100 Marks

**Part A**

Answer all questions.

Each question carries 3 marks.



1. What is a densitometer ? Distinguish between float type and bridge type densitometers.
2. Give working principle of a optical pressure transducer.
3. What are types of errors present in manometers ?
4. What is a stroboscope ? Give working principle.
5. Mention features of a IC temperature sensor.

(5 × 3 = 15 marks)

**Part B**

Answer all questions.

Each question carries 5 marks.

6. What are the different types of load cells ? Explain.
7. How velocity is measured using a variable reluctance proximity pick up ?
8. Mention about units and standards of density, specific gravity and viscosity used in industries.
9. Distinguish between Elastic and Capacitive type pressure gauges.
10. Explain how characteristics of a thermistor is linearized.

(5 × 5 = 25 marks)

**Part C**

Answer all questions.

Each full question carries 12 marks.

11. Explain how speed and velocity can be measured. Explain working of different types of tachometers using neat diagrams.

Or

Turn over

12. Discuss in detail different methods of torque measurement.
13. Explain how LVDT is used for vibration measurement. Use neat sketches. Mention drawbacks of LVDT measurements.

*Or*

14. Explain how seismic instrument can be used as an accelerometer and vibrometer.
15. Explain different methods used for measurement of vacuum and high pressure.

*Or*

16. Explain in detail the working of a Piezo electric pressure sensor. Give advantages of pressure measurement using this sensor.
17. What are different types of filled system thermometers ? Discuss about the sources of error and compensation methods.

*Or*

18. What are the various electrical methods of temperature measurement ? Explain in detail.
19. What is cold junction compensation in a thermo couple ? Explain techniques for high temperature measurement using thermo couples.

*Or*

20. Discuss about radiation methods of temperature measurement. Explain the working of total radiation pyrometer and optical pyrometer.

(5 × 12 = 60 marks)

