

Roll No. 

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Total No. of Pages : 02

Total No. of Questions : 09

**B.Tech.(EIE) (2011 & Onwards) (Sem.-6)****INDUSTRIAL MEASUREMENTS**

Subject Code : EI-304/403

Paper ID : [A0843]

Time : 3 Hrs.

Max. Marks : 60

**INSTRUCTION TO CANDIDATES :**

1. **SECTION-A** is **COMPULSORY** consisting of **TEN** questions carrying **TWO** marks each.
2. **SECTION-B** contains **FIVE** questions carrying **FIVE** marks each and students has to attempt any **FOUR** questions.
3. **SECTION-C** contains **THREE** questions carrying **TEN** marks each and students has to attempt any **TWO** questions.

**SECTION-A****1. Answer briefly :**

- a. What is the need of measurements? Explain.
- b. Differentiate between Line and End Standards.
- c. Define pressure. How is it different from stress? Explain.
- d. Write down the various advantages and disadvantages of U tube Manometer.
- e. Explain the principle of Bimetallic Thermometers.
- f. List the salient features of RTDs.
- g. What do you mean by variable head flow meters? Explain.
- h. What is a hot Wire Anemometer? Explain.
- i. Explain the importance of moisture measurement in industry.
- j. What do you mean by seismic pickups? Explain.

### SECTION-B

2. What are optical flats? Describe their construction and theory. How comparative lengths are measured using optical flats?
3. Explain the constructional details and working of bellows. Describe how with the help of two bellows elements absolute pressure, gauge pressure and differential pressure can be measured. Describe the advantages and disadvantages of Bellows.
4. Describe the construction and working of total radiation pyrometers.
5. Describe construction and working of an Electromagnetic flow meter. Explain its advantage and disadvantages.
6. What are the different electrical methods used for measurement of liquid level? Describe the Resistive method and explain its advantages and disadvantages.

### SECTION-C

7.
  - a. Describe the method of measuring torque of rotating shafts using strain gauges.
  - b. Explain any two methods used for measurement of humidity.
8.
  - a. Describe the construction and working of thermocouples. Describe the thermo-electric laws and their applications.
  - b. Describe construction and working of an ultrasonic flow meter. Also explain its advantage and disadvantages.
9. Explain the following :
  - a. Electrical comparator.
  - b. Pirani Gauge.