Seat No.: _____ *Enrolment No._____*

GUJARAT TECHNOLOGICAL UNIVERSITY

BE- IVth SEMESTER–EXAMINATION – MAY/JUNE- 2012

Subject code: 141702 **Date: 31/05/2012**

Subject Name: Transducers

Time: 10:30 am – 01:00 pm **Total Marks: 70**

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1 **(a)** List out the various factors to be considered during selecting a transducer for a specific application and Explain it with suitable example. **07**

(b) Define the following terms in one / two lines only **07**

1) Calibration 2) Lag 3) Drift 4) Backlash
5) Fidelity 6) Precession 7) Reproducibility

Q.2 **(a)** What is a Pressure switch? Explain in brief. What are the uses of pressure switches? **07**

(b) Draw a neat sketch to show the essential parts of a Bourdon tube pressure gauge .Describe the purpose of each part. Also describe the various adjustment schemes for it. **07**

OR

(b) With a neat sketch, Explain the construction, working, advantages and disadvantages of Ultrasonic vibration method of thickness measurement. **07**

Q.3 **(a)** Define the term pH. Explain the working principle of pH measurement. State the application, advantages and disadvantages for pH meters. **07**

(b) Why is the viscosity measurement important for Industrial processes? Explain in detail, the working principle of Industrial Viscosity meter with neat sketch and associated applications. **07**

OR

Q.3 **(a)** What are the different types of Static Errors? Explain each of them. Also describe in brief the statistical Analysis for measurement. **07**

(b) Describe the design and working of the X - Y type graphical recorder with help of block diagram. Also narrate the applications and specifications associated with its. **07**

Q.4 **(a)** List the various types of speed – measuring devices. Explain the Contactless Tachometer in detail. **07**

(b) Classify the methods for liquid level measurement. Describe the Float type level indicator in detail ,with advantages and disadvantages. **07**

OR

Q.4 **(a)** Classify the types of flow meter with measurement methods associated it. Describe in detail, the variable area flow meter (Rota meter). **07**

(b) Describe the optical method type level detectors with working, construction, application, advantages and disadvantages. **07**

Q.5 **(a)** Describe the various temperature scales in detail. What do mean by IPTS? Explain it in brief. **07**

(b) Discuss the various points to be considered for the selection of Flow meter, with proper justification/suitable example. **07**

OR

Q.5 **(a)** Write the technical short note on Analog Pulse telemetry. **07**

(b) What is a thermocouple? Classify the types of them. State the applications, advantages, disadvantages and calibration procedure for thermocouples. **07**

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