

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**
