

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER- IV EXAMINATION – WINTER 2017****Subject Code: 141702****Date: 29/11/2017****Subject Name: Transducers****Time: 02.30PM to 05.00PM****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) Explain working principle of thermocouple, its types. And also compare with other basic temperature transducers. **07**  
(b) Explain working principle of strain gauge along with gauge factor and its types. **07**
- Q.2** (a) Draw schematic diagram of variable area flowmeter and explain working principles with merits and demerits. **07**  
(b) List out the various factors to be considered during selecting a transducers with suitable example. **07**
- OR**
- (b) Write a short note on optical pyrometer. **07**
- Q.3** (a) Explain functioning of pressure switch. What are the uses of pressure switches? **07**  
(b) List the various types of velocity measurement transducers. Explain the Contactless Tachometer in detail. **07**
- OR**
- Q.3** (a) Define the term pH. Explain the working principle of pH transducers with necessary schematic. **07**  
(b) Explain major static characteristics of instruments. **07**
- Q.4** (a) Explain technical concepts of thickness measurement in detail. **07**  
(b) Explain functioning of LVDT transducers with merits and demerits. **07**
- OR**
- Q.4** (a) Explain technical aspects of capacitance level indicator and radiation level detector in detail. **07**  
(b) Discuss various statistical analysis involve with measurement of quantity. **07**
- Q.5** (a) Explain following **07**  
    • Reynold's number  
    • float type level indicator  
    • air bellows  
(b) Discuss technical aspects of Torque measurement. **07**
- OR**
- Q.5** (a) Explain fiber optic temperature measurement system. **07**  
(b) Write a short note on telemetry systems and its application. **07**

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