

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-IV (NEW) EXAMINATION – WINTER 2021****Subject Code:3141709****Date:24/12/2021****Subject Name:Principle of Measurement Science****Time:10:30 AM TO 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.
4. Simple and non-programmable scientific calculators are allowed.

- Q.1** (a) Define Speed of Response, Lag errors, Fidelity. **03**  
 (b) Define Accuracy, Precision, Sensitivity and Resolution. **04**  
 (c) List classification of transducer. List selection criteria of transducer. **07**
- Q.2** (a) List measurement units of level. **03**  
 (b) Explain liquid level measurement using float sensor. **04**  
 (c) Explain liquid level measurement using ultrasonic transducer. **07**
- OR**
- (c) Explain calibration of liquid level transmitter in detail with respect to example. **07**
- Q.3** (a) List measurement units of pressure. **03**  
 (b) Explain bourdon tube in detail. **04**  
 (c) Explain Mcleod gauge in details. **07**
- OR**
- Q.3** (a) Explain manometers in detail. **03**  
 (b) Explain diaphragms in detail. **04**  
 (c) Explain dead weight tester in detail. **07**
- Q.4** (a) List measurement units of flow. **03**  
 (b) Explain rotameter for flow measurement. **04**  
 (c) Explain vortex flow meter in detail. **07**
- OR**
- Q.4** (a) List types of flow measurement. **03**  
 (b) Explain mass flow meter. **04**  
 (c) Explain turbine flow meter. **07**
- Q.5** (a) What is difference between PT-100 and PT-1000 RTD? **03**  
 (b) List units of temperature measurement. Convert temperature in Celsius to other unit with help of example. **04**  
 (c) Explain RTD in detail. **07**
- OR**
- Q.5** (a) Explain thermocouple laws. **03**  
 (b) Why cold junction compensation in thermocouple is required? Explain. **04**  
 (c) Explain thermistor in detail. **07**

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