

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-IV (NEW) EXAMINATION – SUMMER 2024****Subject Code:3141709****Date:01-07-2024****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 Drift, Threshold and Dead zone **03**  
 (b) Classify errors in detail with suitable examples **04**  
 (c) Give a detailed classification of Transducers **07**

- Q.2** (a) Define Speed of response, lag and fidelity **03**  
 (b) Explain the significance and types of standards **04**  
 (c) Explain in detail principle, construction, working, advantages and disadvantages of Radiation pyrometer **07**

**OR**

- (c) Explain in detail principle, construction, working, advantages and disadvantages of Thermocouple. **07**

- Q.3** (a) Explain lead compensation techniques implemented in RTD **03**  
 (b) Define, temperature, pressure, level and flow **04**  
 (c) Explain in detail principle, construction, working, advantages and disadvantages of device used for absolute as well as differential pressure **07**

**OR**

- Q.3** (a) Define Gauge pressure, absolute pressure and differential pressure **03**  
 (b) Explain flapper nozzle assembly **04**  
 (c) Explain in detail principle, construction, working, advantages and disadvantages of McLeod Gauge **07**

- Q.4** (a) What is dead weight piston gauge? **03**  
 (b) Explain resistive type of level measurement **04**  
 (c) Explain in detail principle, construction, working, advantages and disadvantages of Air purge System **07**

**OR**

- Q.4** (a) Explain Inductive level measurement **03**  
 (b) Explain thermal conductivity pressure gauge **04**  
 (c) Explain in detail principle, construction, working, advantages and disadvantages of level sensor which can be used for digital as well as analog level measurements **07**

- Q.5** (a) Explain principle of ultrasonic level measurement **03**  
 (b) Explain significance of flow measurement **04**  
 (c) Explain in detail principle, construction, working, advantages and disadvantages of Orifice flow meter **07**

**OR**

- Q.5** (a) Explain working of ultrasonic flow meters **03**  
 (b) Explain in detail solid flow measurement **04**  
 (c) Explain in detail principle, construction, working, advantages and disadvantages of Electromagnetic flow meter **07**

\*\*\*\*\*