

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VI (NEW) EXAMINATION – WINTER 2023****Subject Code:3161008****Date:11-12-2023****Subject Name:Sensors and Transducers****Time:02:30 PM TO 05:00 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) Differentiate between Sensor and Transducer. **03**
 (b) Explain Sample and Hold Circuit. **04**
 (c) Explain classification of Sensors. **07**
- Q.2** (a) Define : (i) Accuracy (ii) Repeatability (iii) Resolution **03**
 (b) Explain types of errors. **04**
 (c) Describe the RTD and explain how RTD can be used to measure temperature. **07**
- OR**
- (c) Explain the construction of thermistor and its resistance temperature characteristics. **07**
- Q.3** (a) Write the application of Tactile Sensor. **03**
 (b) Write short note on Load cell. **04**
 (c) Explain the principle of operations of LVDT with the help of neat sketch and characteristics. **07**
- OR**
- Q.3** (a) Explain Laser Range Sensor. **03**
 (b) Write short note on Proximity Sensor. **04**
 (c) Explain types of Magnetic Sensor with its principle and advantages. **07**
- Q.4** (a) Explain IR Sensor. **03**
 (b) Explain ultrasonic flow meter. **04**
 (c) Classify the types of bridges used for measurement techniques and explain any one in detail. **07**
- OR**
- Q.4** (a) Explain electronic energy meter. **03**
 (b) What are the applications of Attenuators. **04**
 (c) Explain Photo Conductive Cell and Photo Voltaic Cell. **07**
- Q.5** (a) Explain Bluetooth Sensor. **03**
 (b) Explain R-2R ladder D-A convertor. **04**
 (c) Explain Differential amplifier and Instrumentation amplifier. **07**
- OR**
- Q.5** (a) Write the application of sensors in drone. **03**
 (b) Explain GPS (Global Positioning System). **04**
 (c) Write note on Successive Approximation type A-D converter. **07**
