

Seat No./Enrollment No.: _____

GUJARAT TECHNOLOGICAL UNIVERSITY
BACHELOR OF ENGINEERING – SEMESTER 6 – EXAMINATION – SUMMER 2026

Subject Code: 3160620

Date: 26/05/2026

Subject Name: Instrumentation and Sensors

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) Differentiate between Sensor & Transducer. **03**
 - (b) List of various physical variables. **04**
 - (c) What is Sensor? Explain different types of Sensor in details. **07**
- Q.2**
- (a) What is measurement & instrumentation? Explain the elements of measurement system **03**
 - (b) List various specification of sensor **04**
 - (c) List various flow sensor and explain any one of them. **07**
- OR
- Q.2**
- (c) List various Pressure Sensor & Explain any one of them. **07**
- Q.3**
- (a) Explain piezometer ? **03**
 - (b) List out and explain the criteria for sensor selection **04**
 - (c) List various temperature sensor & explain any one of them **07**
- OR
- Q.3**
- (a) Explain the flow of planning of monitoring programs **03**
 - (b) What is a Noise? 7 Explain the different types of Noise **04**
 - (c) Explain the different Data reduction Techniques in details **07**
- Q.4**
- (a) List any Two light Sensor **03**
 - (b) Define :- (1) Average Value (2) Standard Deviation (3) Mode **04**
 - (c) Explain Permanent installations & Temporary Installations of sensor **07**
- OR
- Q.4**
- (a) Define terms:- (1) Median (2) Range **03**
 - (b) Explain Time domain Signal Processing **04**
 - (c) Explain types of filters used in Frequency domain analysis **07**
- Q.5**
- (a) Define (1) Discrete Signal (2) Noise (3) Signal to Noise Ration **03**
 - (b) Explain Fourier Transform & its application **04**
 - (c) Explain the classification of Transducer in details **07**
- OR
- Q.5**
- (a) Explain in brief Load cell **03**

- | | |
|---|-----------|
| (b) Explain the principle of operations of LVDT | 04 |
| (c) What is FFT and Explain its application in civil Engineering | 07 |
