

GUJARAT TECHNOLOGICAL UNIVERSITY**BE- SEMESTER– VI EXAMINATION – SUMMER 2026****Subject Code:3162415****Date:29-05-2026****Subject Name: Industrial Electronics****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) Enlist Types of relays. Explain in brief Limit Switch. **03**
 (b) Explain in brief Regenerative braking for induction motors (IM). **04**
 (c) Explain working of electrical contactor with necessary diagrams. **07**

- Q.2** (a) Explain in brief Hydraulic Servo Motors. **03**
 (b) What do you mean by Sequence Control? Explain in brief Float switch. **04**
 (c) Explain in details Speed Vs Torque Characteristic of Electrical DC Servomotors. **07**

OR

- (c) Explain Principle of Operation of AC Servo Motors with neat sketches. **07**
 Discuss Mathematical Model for the same.
- Q.3** (a) Explain in brief working of LDR. **03**
 (b) What do you understand by Flaw Detection w.r.t. Ultrasonic Waves? **04**
 Explain application of Ultrasonic Waves in medicine.
 (c) List out Advantages of the Optical fiber. Explain applications of Optical fiber for Power Electronics Circuits. **07**

OR

- Q.3** (a) Explain in brief working of Photo Diode. **03**
 (b) What is thermal effects of Ultrasonic? Explain in details **04**
 Magnetostriction Oscillator.
 (c) Explain Piezoelectric Generator & Piezoelectric Oscillator in details. **07**
- Q.4** (a) What do you mean by Tap changer & Solid state stabilizer w.r.t. AC **03**
 Power Conditioner?
 (b) Enlist & explain types of Power Line Disturbances. **04**
 (c) Enlist & explain Types of Uninterruptible power supply (UPS). **07**

OR

- Q.4** (a) Define Noise. Explain in brief depth sounding w.r.t. Ultrasonic. **03**
 (b) Explain RFI noise reduction, surge reduction w.r.t. AC Power **04**
 Conditioner.
 (c) Define Step Angle. Explain principle of operation of Stepping Servo **07**
 motors. Also explain Stepping Motors for Position Control Applications.
- Q.5** (a) Explain in brief Photo-voltaic (PV) cells. **03**
 (b) Discuss about Capacitive Proximity Sensors. **04**
 (c) Explain in details Inductive Proximity Sensors & Ultrasonic Proximity **07**
 Sensors.

OR

- Q.5** (a) Explain star-delta starter w.r.t. Magnetic Control Circuits. **03**
 (b) What are the characteristics of fiber optic systems? Enlist Disadvantages **04**
 of fiber optic systems.
 (c) What do you mean by Inclinator? Discuss about Incremental **07**
 Encoder & Absolute Encoder.
