

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER– V • EXAMINATION – WINTER 2016

Subject Code:151703**Date: 17/11/2016****Subject Name: Electronics in Industries****Time: 10:30AM – 01:00PM****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) Explain with necessary diagrams Insulated Gate Bipolar Transistor (IGBT). **07**
 (b) Explain Power Metal Oxide Semiconductor Field-Effect Transistor (MOSFET). **07**
- Q.2** (a) Explain the Fast Recovery and Schottky Power Diodes. **07**
 (b) Draw and explain basic structure and characteristics of the DIAC. **07**
- OR**
- (b) Draw and explain basic structure and characteristics of the TRIAC. **07**
- Q.3** (a) Explain Reverse Conducting Thyristor (RCT). **07**
 (b) Explain any two thyristor turn-on methods with circuit diagrams. **07**
- OR**
- Q.3** (a) Explain Silicon Unilateral Switch (SUS) and Silicon Bilateral Switch (SBS). **07**
 (b) How works UJT as a relaxation oscillator? Explain with circuit diagrams. **07**
- Q.4** (a) Explain any two thyristor turn off methods with circuit diagrams. **07**
 (b) Explain voltage commutation and current commutation circuit. **07**
- OR**
- Q.4** (a) Draw and explain diode resistance capacitance firing circuit. **07**
 (b) Explain overvoltage protection and over current protection for power semiconductor devices. **07**
- Q.5** (a) Discuss half-wave rectifier with resistive load. Also derive equations for rectifier. **07**
 (b) Explain three-phase bridge rectifier using resistive load. **07**
- OR**
- Q.5** (a) Draw and explain half-wave controlled rectifier with resistive-inductive load. **07**
 (b) Explain full-wave controlled bridge rectifier. **07**
