

GUJARAT TECHNOLOGICAL UNIVERSITY**B. E. Sem. - V - Examination – June- 2011****Subject code: 152401****Subject Name: Power Electronics Devices & Components.****Date: 20/06/2011****Time: 10:30 am – 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.

- Q.1** (a) Explain block diagram of power electronics system in detail. **07**
(b) Explain ideal and practical characteristics of switch. **07**

- Q.2** (a) Explain the construction and working of PiN diode. **07**
(b) Enlist input and output characteristics of Power Transistor in detail. **07**

OR

- (b) State the construction and working of Power Transistor **07**

- Q.3** (a) Draw V-I characteristics of Thyristor and explain it in detail. **07**
(b) Distinguish clearly between voltage commutation and current commutation in Thyristor circuits. **07**

OR

- Q.3** (a) Describe two transistor analogy of SCR with neat diagrams. **07**
(b) Enumerate the various commutation technique used for Thyristor. **07**

- Q.4** (a) Explain input and output characteristics of MOSFET. **07**
(b) Write short note on IGBT – construction, working, characteristics. **07**

OR

- Q.4** (a) Describe the $\frac{dv}{dt}$ protection of Thyristor with necessary circuits. **07**
(b) Discuss series and parallel operation of SCR in detail. **07**

- Q.5** (a) Write a short note on UJT as a relaxation oscillator with necessary waveforms. **07**
(b) What is GTO? Describe its construction with neat diagrams.. **07**

OR

- Q.5** (a) Explain schottky barrier diode with waveforms. Discuss the term schottky barrier, ohmic junction and HV schottky diode. **07**
(b) Write a short note on LASCR. **07**
