Seat No.:	Enrolment No
GUJARAT TECHNOLOGICAL UNIVERSITY	

BE- Vth SEMESTER-EXAMINATION – MAY/JUNE - 2012

Subject code: 152403 Date: 04/06/2012 **Subject Name: Applied Power Electronics** Time: 02:30 pm - 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. Notation used have usual meaning. (a) What is power electronics? Discuss concept of power processing. 07 0.1 **(b)** Explain log amplifier circuit using operational amplifier. 07 (a) Explain precision rectifier circuit with neat diagram using operational 0.2 **07** amplifier. (b) What is PWM? Explain single pulse width modulation technique. Where it is used? OR (b) Solve following simultaneous equations using analog computation. 07 2x + 3y = 55x + y = 1Draw required circuit for illustration purpose. **Q.3** (a) Discuss switched capacitor circuit concept. And realize following circuits 07 using switched capacitor. Inverting amplifier (i) Non inverting amplifier. (ii) (b) Discuss active high frequency filter circuit with its response. 07 What is function of filter circuit? Explain active low pass filter circuit 07 0.3 with its response. **(b)** Explain working of HVDC transmission. **07** 0.4 (a) Draw basic diagram of DC to DC converter and explain its working. **07 (b)** Discuss following consumer applications in brief. **07** (i) LED lighting. Induction cooking. (ii) OR **Q.4** (a) Explain working of half wave controlled converter circuit. **07** Explain working principle of DC drives with block diagram. State its application. **Q.5** (a) Explain off line UPS with basic block diagram. 07 **(b)** Draw and explain working of battery charging circuit. **07** OR 07 **Q.5** (a) Discuss induction heating as an industrial application. (b) Explain fan regulator circuit with appropriate circuit. **07** ******