

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-V • EXAMINATION – SUMMER 2013****Subject Code: 152403****Date: 21-05-2013****Subject Name: Applied Power Electronics****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.
4. Notations / symbols used have usual meaning.

- Q.1** (a) What is PLL? Explain working principle of PLL with neat diagram. **07**
(b) Define Phase control. With help of block diagram, describe working of a controlled rectifier. **07**

- Q.2** (a) What is Power Processing? What are different functions of it? What is its importance in Power Electronics? **07**
(b) Explain working of PWM based modulator. State its importance for power electronics systems. **07**

OR

- (b) Draw detailed filter frequency response for: high-pass, low-pass, band-stop filter. How cut-off frequency is decided? **07**

- Q.3** (a) Explain the concept of HVDC transmission. **07**
(b) Explain working of following circuits with neat schematic diagram. **07**
(1) Log Amplifier (2) Peak detector.

OR

- Q.3** (a) Write technical note on: Active power filter. **07**
(b) Draw schematic diagram and working of switch capacitor filter. State its application. **07**

- Q.4** (a) Explain SMPS with necessary schematic diagram. **07**
(b) State characteristics of Ultrasonic. Explain ultrasonic flow detector. **07**

OR

- Q.4** (a) Describe basic principle of die-electric heating. Also, discuss the effect of parameter variation on rate of heating. **07**

- Q.4** (b) Enlist various types of battery charging methods. Explain any one of them in detail. **07**

- Q.5** (a) With neat diagram explain working principle of **08**
(1) high frequency fluorescent lighting
(2) Induction Cooking.

- (b) With block diagram, explain working of speed control DC Motor **06**

OR

- Q.5** (a) State motor drive applications. Discuss any two of them. **08**
(b) Explain utility of Simulation for Power Electronics systems. **06**
