

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-V • EXAMINATION – WINTER 2013****Subject Code: 152403****Date: 04-12-2013****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 used have usual meaning.

- Q.1** (a) Discuss concept of power processing with neat block diagram. **07**
(b) Explain working of anti-log amplifier circuit. **07**
- Q.2** (a) Explain working of peak detector circuit with neat diagram. Draw relevant waveforms. **07**
(b) Discuss the concept of switch capacitor circuit. Also draw inverting and non-inverting amplifier circuit based on switch capacitor circuit. **07**
- OR**
- (b) Explain low pass filter circuit. Draw its frequency response. **07**
- Q.3** (a) Draw and explain DC-DC power converter as a basic power modulator. **07**
(b) Explain op-amp based high pass filter circuit. Also draw its response. **07**
- OR**
- Q.3** (a) Explain state variable filter circuit with illustration. **07**
(b) Discuss concept of HVDC transmission. Also compare it with AC transmission. **07**
- Q.4** (a) Explain switch mode power supply (SMPS) with neat diagram. **07**
(b) Draw a block diagram of PLL and explain working of each block. **07**
- OR**
- Q.4** (a) Explain basic working of AC-DC controlled rectifier circuit. **07**
(b) Draw and explain charging circuit for battery. **07**
- Q.5** (a) Write a brief note on static VAR compensation. **07**
(b) Discuss working of DC drive system with block diagram. **07**
- OR**
- Q.5** (a) Write a short note on followings, **07**
(1) Induction heating.
(2) Electric welding.
(b) Discuss LED lighting as a consumer electronics application. **07**
