

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**BE - SEMESTER-V (OLD) EXAMINATION – WINTER 2017****Subject Code: 152403****Date: 08-11-2017****Subject Name: Applied Power Electronics****Time: 10:30 am to 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) Define Electrical Motor Drive. Draw and Explain block diagram of electric motor drive system. **07**
- (b) Explain working of peak detector circuit with neat diagram. Draw relevant waveforms. **07**
- Q.2** (a) What is PWM? Explain single pulse width modulation technique. Where it is used? **07**
- (b) What is power electronics? Discuss concept of power processing. **07**
- OR**
- (b) Explain basic power diagram, working, advantages, disadvantages and application of cycloconverter. **07**
- Q.3** (a) Explain working of HVDC transmission. **07**
- (b) Explain working of uninterruptible power supply (UPS) with block diagram. **07**
- OR**
- Q.3** (a) Explain op-amp based high pass filter circuit. Also draw its response **07**
- (b) Write short note on: Active power filter. **07**
- Q.4** (a) Explain off line UPS with basic block diagram. **07**
- (b) Draw and explain charging circuit for battery. **07**
- OR**
- Q.4** (a) Explain SMPS with necessary schematic diagram. **07**
- (b) Explain working of half wave controlled converter circuit. **07**
- Q.5** (a) Discuss induction heating as an industrial application. **07**
- (b) Write a brief note on high frequency fluorescent lighting. **07**
- OR**
- Q.5** (a) With block diagram, explain working of speed control DC Motor. **07**
- (b) Explain induction cooking with necessary block diagram. **07**

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