

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER-V EXAMINATION – WINTER 2015

Subject Code: 152403**Date: 08/12/2015****Subject Name: Applied Power Electronics****Time: 10:30am to 1:00pm****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) 1. Define Simulation. List the types of simulation processes. Draw the block diagram of all simulation processes. **04**
 2. Explain the challenges in computer simulation. **03**
 (b) Define Electrical Motor Drive. Explain the difference between AC and DC drives. **07**
- Q.2** (a) Define signal processing. Explain the necessity and type of signal processing and its requirement in PES. **07**
 (b) What is multivibrator? Explain working of astable multivibrator with necessary circuit and waveform. **07**
- OR**
- (b) Design an astable multivibrator using IC 555 having frequency of 1 KHz and duty cycle of 50 %. Draw the necessary circuit diagram with value of components. **07**
- Q.3** (a) Define Active Filter. Explain concept and realization of Band Stop Filter using simple circuit. **07**
 (b) Explain basic power diagram, working, advantages, disadvantages and application of Cycloconverter. **07**
- OR**
- Q.3** (a) Define Active Filter. Explain concept and realization of Band Pass Filter using simple circuit. **07**
 (b) Explain basic power diagram, working, advantages, disadvantages and application of DC – DC Converter. **07**
- Q.4** (a) Explain configuration of HVDC Transmission along with its advantages, disadvantages and application. **07**
 (b) Define UPS. Explain the classification of it and also explain working of UPS with necessary block diagram. **07**
- OR**
- Q.4** (a) Define following terms: 1. Active Power Filter 2. Harmonic Restrain Factor 3. SVC 4. TCI 5. TSC 6. Power Factor 7. Power Quality. **07**
 (b) Define SMPS. Explain the classification of it and also explain working of SMPS with necessary block diagram. **07**
- Q.5** (a) Define Electrical Heating. Explain the working, advantages, disadvantages and application of Induction heating using block diagram. **07**
 (b) Write Technical Short Note on: LED lighting. **07**
- OR**
- Q.5** (a) Define Electrical Heating. Explain the working, advantages, disadvantages and application of Die electric heating using block diagram. **07**
 (b) Write Technical Short Note on : Ultrasonic **07**
