

GUJARAT TECHNOLOGICAL UNIVERSITY
ME - SEMESTER-I(New course)• EXAMINATION – WINTER- 2015

Subject Code: 2714505**Date: 04/01/2016****Subject Name: Power Conditioning****Time:2:30 pm to 5:00 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) Discuss the causes, effects and remedial measures of various types of power quality disturbances. **07**
- (b) What are the effects of linear and non linear loads on power quality? **07**
- Q.2** (a) Explain the basic concept of Unity Power Factor Rectifier. **07**
- (b) Explain the phenomena of power exchange between AC System and STATCOM connected to it. **07**

OR

- (b) State the advantages of a coreless type induction heating and explain the working principle of the coreless type induction heating. **07**
- Q.3** (a) Enlist the various hybrid filters and discuss the advantages and applications of hybrid filters. **07**
- (b) Explain in detail the PFC Converter. **07**

OR

- Q.3** (a) List out the various applications of SMPS. Describe in details the function of Switch Mode Power Supply with diagram. **07**
- (b) Draw and explain the PWM converter topology for shunt active filter. **07**
- Q.4** (a) What are the advantages of on-line UPS over off-line UPS. Discuss the operation of on-line UPS systems. **07**
- (b) Discuss the control technique of SMPS with neat and clean diagram. **07**

OR

- Q.4** (a) List out various passive filters and explain in details. State their limitations. **07**
- (b) Explain followings in detail. **07**
- a. Band pass filter b. Band stop filter c. High pass filter d. Low pass filter
- Q.5** (a) Explain the case study on DSP Control of power supply in active filters. **07**
- (b) Explain the operation of power supply used for X ray equipments in medical science. **07**

OR

- Q.5** (a) Write a short note on harmonic distortion limit as per IEEE standards. **07**
- (b) Write a short note on power supplies used in automobiles. **07**
