

GUJARAT TECHNOLOGICAL UNIVERSITY
ME – SEMESTER IV (NEW) – • EXAMINATION – SUMMER 2016

Subject Code: 2742903**Date: 04/05/2016****Subject Name: Power Quality****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.
4. Notations used have usual meaning.

- Q.1** (a) Explain Linear & Non Linear Loads with suitable example. **07**
(b) Discuss about the inter harmonics. How inter harmonics are generated? **07**
- Q.2** (a) Explain about the occurrence of Voltage sag due to induction motor starting. What care is to be taken to avoid the voltage sag occurring due to starting of induction motor? **07**
(b) What are the voltage events? Write a brief note on Monitoring of Voltage Events **07**
- OR**
- (b) Obtain Total Harmonics Distortion (THD) in percentage for triangle waveform. **07**
- Q.3** (a) Write detailed note on parallel resonance passive filter circuit. **07**
(b) A single phase AC-DC converter is feeding power to the highly inductive load. If firing angle is α , find the input current harmonics. **07**
- OR**
- Q.3** (a) Discuss the Effect of harmonics on, **07**
(1) Transformer
(2) Power System Relay
(b) Write a brief note about the effects of Voltage Events on Equipment. **07**
- Q.4** (a) Define and explain following terms, **07**
(1) Distortion factor.
(2) Total demand distortion.
(b) Discuss protection issues related to distributed generation systems. **07**
- OR**
- Q.4** (a) Write a short note on Impact of Distributed Generation. **07**
(b) Explain singly tuned filter as a passive filter for harmonics filtration. Also discuss general design aspects of passive filter. **07**
- Q.5** (a) Write a short note on disturbance analyzer. **07**
(b) Discuss in brief about the power quality standards along with harmonics distortion limit. **07**
- OR**
- Q.5** (a) Explain Unified Power Flow Controller (UPFC) with neat diagram. **07**
(b) Describe basic configuration of series active filter with necessary block diagram. **07**
