

GUJARAT TECHNOLOGICAL UNIVERSITY**M. E. - SEMESTER – II • EXAMINATION – WINTER • 2013****Subject code: 1724505****Date: 02-01-2014****Subject Name: Power Quality****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.

- Q.1 (a) Explain the purpose of grounding. describe some typical power quality problems that are due to inadequacies in the wiring and grounding of electrical systems. 07
- (b) What is Power Quality? With a waveform sketch, explain the terms 07
- (i) Voltage sag
- (ii) Voltage interruption
- (iii) Voltage swells.
- Q.2 (a) What are transient over voltages? Explain the different types of transient over voltages. 07
- (b) Enlist and Explain various devices used for voltage regulation. 07
- OR**
- (b) Discuss various causes of voltage flicker and their effects. Suggest various means to reduce flickers. 07
- Q.3 (a) Explain the principle of DVR operation used for sag mitigation. 07
- (b) Explain in detail about various methods to mitigate voltage swells. 07
- OR**
- Q.3 (a) What do you mean by CBEMA curve? What are the Solutions at the End-User Level for improving the overall voltage sag performance? 07
- (b) Explain the various causes and effects of voltage sags. 07
- Q.4 (a) Discuss the basic features and explain the operation of passive and active filters with diagram. 07
- (b) Give name of two most commonly used indices for measuring the harmonic content of a waveform. Explain each in detail. 07
- OR**
- Q.4 (a) Explain Effects of Harmonic Distortion in detail. 07
- Q.4 (b) Explain Principles for Controlling Harmonics 07
- Q.5 (a) What do you mean by PCC? Explain in detail about general procedure for harmonic distortion Evaluation for the utility systems. 07
- (b) Bring out the significance of Power quality monitoring. What are the important power quality monitoring objectives? 07
- OR**
- Q.5 (a) Write short notes on power quality measurement system. What are the characteristics of power quality measurement equipments? 07
- (b) Discuss in detail about the instruments used for analyzing non sinusoidal voltage and currents. 07
