

GUJARAT TECHNOLOGICAL UNIVERSITY**M. E. - SEMESTER – II • EXAMINATION – WINTER • 2014****Subject code: 1724505****Date: 05-12-2014****Subject Name: Power Quality****Time: 02:30 pm - 05:00 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 influence of Fault location and Fault level on Characterizing Voltage Sag. **07**
- (b) List and explain most common Power Quality problems. Support the answer with necessary diagrams and examples. **07**
- Q.2** (a) Explain the term Voltage Regulation with respect to Power System. Support the answer with necessary diagram. **07**
- (b) List various causes for Voltage Flicker. Explain effect of the same on Performance of System in terms of Power Quality. **07**
- OR**
- (b) Define Surge Impedance. Explain effect of the same on operation of the Power System. **07**
- Q.3** (a) List only causes of Voltage Sag. Compare contribution/ role of End user and Utility for the Phenomenon of the Voltage Sag. **07**
- (b) Explain Voltage Sag mitigation based on Dynamic Voltage Restorer Technology. **07**
- OR**
- Q.3** (a) List importance of Voltage Swell with respect to Power Quality of the system. List mitigation techniques for the same. **07**
- (b) Explain Voltage Sag Immunity Standard SEMI F 42. **07**
- Q.4** (a) (i) Explain K-rated Transformer. **04**
- (ii) Draw only neat Waveforms to define Harmonics, Inter- Harmonics and Sub-Harmonics **03**
- (b) List importance of Harmonic Filtering. Explain any one Filter in detail. **07**
- OR**
- Q.4** (a) (i) Define Characteristics and Non-Characteristics Harmonics. **04**
- (ii) Discuss significance of IEEE Harmonic Standard 512-1992. **03**
- (b) Compare Harmonic Series and Parallel Resonance in all possible manners. **07**
- Q.5** (a) With respect to Power Quality monitoring, explain selection of Transducers. **07**
- (b) Explain Structure of Modern Monitoring System for Harmonic Assessment. Draw necessary diagram to support the answer. **07**
- OR**
- Q.5** (a) Explain Objectives and Requirements of Power Quality monitoring with suitable example. **07**
- (b) Classify Harmonics based on requirement for measuring Instruments with respect to IEC 61000 4-7. **07**
