

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**ME – SEMESTER II (OLD) EXAMINATION – SUMMER 2017**

**Subject Code: 1724505****Date: 11/05/2017****Subject Name: Power Quality****Time: 10:30 A.M. to 01:00 P.M.****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 principle of Dynamic Voltage Restorer (DVR) operation with reference to sag mitigation in Power System. **07**
- (b) Define Harmonics, Inter- Harmonics and Sub-Harmonics. Support the answer with neat diagram. **07**
- Q.2** (a) Explain causes and effect of the Voltage Flicker on Performance of System in terms of Power Quality. **07**
- (b) Explain purpose of Grounding and problem caused due to poor Grounding. **07**
- OR**
- (b) With a neat sketch, explain the terms (i) Voltage sag, (ii) Voltage interruption and (iii) Voltage swells. **07**
- Q.3** (a) Define Surge Impedance and effect of the same on operation of the Power System. **07**
- (b) Discuss the need of Passive and Active Filters with respect to Power Quality of System. **07**
- OR**
- Q.3** (a) Explain the term Voltage Regulation with respect to Power System. Support the answer with necessary example. **07**
- (b) Explain various methods to mitigate Voltage Swells. **07**
- Q.4** (a) Explain Reactive Power Management and its Impact on Power Quality. **07**
- (b) Explain need of Power Quality Measurement System. Also list important characteristics of Power Quality Measurement Equipments. **07**
- OR**
- Q.4** (a) List importance of Harmonic Filtering. Explain any one Filter in detail. **04**
- (b) Explain selection of Transducers with respect to Power Quality Monitoring. **07**
- Q.5** (a) List various types of Transient Voltages occurring in Power System. Explain any one in detail with necessary diagram. **07**
- (b) Explain Voltage Sag Immunity Standard SEMI F 42 Curve. **07**
- OR**
- Q.5** (a) Explain Harmonics Series and Parallel Resonance. Draw necessary diagram in support. **07**
- (b) Explain Voltage Sag Immunity Standard CBEMA Curve. **07**