

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-VIII(NEW) EXAMINATION – SUMMER 2019****Subject Code:2180911****Date:09/05/2019****Subject Name:Power Quality And Management****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.

- Q.1** (a) What is Power Quality? Discuss the examples of poor power quality issues in brief. **03**  
(b) Define the following terms: 1. Displacement Power Factor 2. Nonlinear load **04**  
3. Flicker  
(c) Discuss significance of power factor correction with power quality point of view. **07**
- Q.2** (a) Explain Responsibilities of the Suppliers and Users of Electrical Power. **03**  
(b) Define: 1.Linear Loads 2.Inrush Current 3.Voltage Sag 4.Voltage Swell **04**  
(c) Explain causes of voltage and current harmonics. **07**
- OR**
- (c) List cures for low frequency disturbances. Explain any two. **07**
- Q.3** (a) Explain application of synchronous condensers. **03**  
(b) Discuss the effect of harmonics on AC Motors **04**  
(c) Explain power factor improvement using static VAR compensators. **07**
- OR**
- Q.3** (a) Explain following terms related to EMI. (1) Common Mode Noise (2) Common **03**  
Mode Rejection Ratio (3) Conducted Emission.  
(b) What is a transient? Discuss the causes of transients in power system. **04**  
(c) Discuss the effects of harmonics on AC motor performance. **07**
- Q.4** (a) Define the term harmonics? List the sources of harmonics in power system. **03**  
(b) Explain different schemes of grounding and bonding in power system in detail. **04**  
(c) List and explain types of harmonics based on the sequence of rotation. Also discuss **07**  
the effect of each
- OR**
- Q.4** (a) What is Electromagnetic Interference (EMI)? Describe main sources of EMI. **03**  
(b) Explain power quality issues with a system containing DG. **04**  
(c) What is the importance of the value of earth's resistance? Describe the fall of **07**  
potential methods for measurement of earth's resistance.
- Q.5** (a) Differentiate grounding and bonding. **03**  
(b) Describe effect of EMI on power quality. **04**  
(c) What is distributed generation? Elaborate its effect on the power quality issues. **07**
- OR**
- Q.5** (a) What are susceptibility criteria for power quality? **03**  
(b) Discuss the Capacitor switching transient. **04**  
(c) Explain number of test locations & test duration for power quality measurement. **07**

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