

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**BE - SEMESTER-VII(NEW) • EXAMINATION – WINTER 2016**

**Subject Code:2170910****Date:18/11/2016****Subject Name:Power Quality and Management(Departmental Elective - II)****Time:10.30 AM to 1.00 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) Discuss significance of power factor correction with power quality point of view. **07**
- (b) What do you understand about power quality issues? Discuss all the power quality issues in brief. **07**
- Q.2** (a) Define and technically describe following terms with suitable example: **07**  
(1) Non Linear loads (2) Inrush current (3) Power factor (displacement)  
(4) Voltage sag (5) Transient.
- (b) Explain causes of voltage and current harmonics. **07**
- OR**
- (b) What are the power quality standards? Discuss responsibilities of supplier and user of electrical power with respect to power quality. **07**
- Q.3** (a) Explain power factor improvement using static VAR compensators. **07**
- (b) Explain different challenges against distributed generation. **07**
- OR**
- Q.3** (a) Discuss the effect of harmonics on different loads. **07**
- (b) Explain power quality measurement devices. **07**
- Q.4** (a) What is EMI? Explain the EMI mitigation techniques. **07**
- (b) Explain the types and causes of transients. **07**
- OR**
- Q.4** (a) Explain the different EMI terminology. **07**
- (b) Explain the essentials of grounding system. **07**
- Q.5** (a) What is grounding? Explain the electric code grounding requirements. **07**
- (b) Explain the different power frequency disturbances. **07**
- OR**
- Q.5** (a) Explain the signal reference ground methods. **07**
- (b) Explain the synchronous condensers for power factor improvement. **07**

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