

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**ME - SEMESTER IV (NEW) – EXAMINATION – SUMMER - 2017**

**Subject Code: 2740704****Date: 03/05/2017****Subject Name: Power Quality****Time: 02:30PM-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) What do you mean by (i) Power quality Weak link and (ii) Treatment Criteria? Discuss the above terms with suitable examples with respect to power quality. **07**
- (b) What are CBEMA and ITIC graphs? Draw and discuss the ITIC graph in detail. **07**
- Q.2** (a) What is an arc furnace? Explain with suitable diagrams arc furnace can produce large voltage sags in electrical network. Also explain starting/stopping of capacitors banks in conjunction with an arc furnace operation. **07**
- (b) Describe shielded isolation transformer for low frequency disturbances. **07**
- OR**
- (b) What do you understand about power quality issues? Discuss all the power quality issues in brief. **07**
- Q.3** (a) Discuss “switching of loads” and “interruption of fault currents” as causes of transients. **07**
- (b) Describe harmonic phase rotation and phase angle relationship. **07**
- OR**
- Q.3** (a) Define individual and total harmonic distortion with example. **07**
- (b) Discuss significance of power factor correction with power quality point of view. **07**
- Q.4** (a) What is signal reference ground (S.R.G.)? How an SRG for a large-sized computer center might be configured? Explain with suitable example. **07**
- (b) Explain single point and multipoint grounding. **07**
- OR**
- Q.4** (a) Define transients in power system. Discuss one example of transient models and their response. **07**
- (b) What is the importance of the value of earth’s resistance? Describe the fall of potential methods for measurement of earth’s resistance. **07**
- Q.5** (a) What is EMI? Discuss EMI mitigation methods. **07**
- (b) Who’s involved in the power quality industry? Discuss in detail. **07**
- OR**
- Q.5** (a) Describe the objectives and procedures for performing power quality monitoring. **07**
- (b) Discuss about the power quality standards in India. **07**

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