

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VIII (NEW) EXAMINATION – WINTER 2018****Subject Code: 2180911****Date: 15/11/2018****Subject Name: Power Quality And Management****Time: 02:30 PM TO 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

MARKS

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|------------|-----|---|-----------|
| Q.1 | (a) | List the sources of harmonics in power system. | 03 |
| | (b) | What is Electromagnetic Interference (EMI)? Describe main sources of EMI. | 04 |
| | (c) | Name and explain different types of power quality issues in brief. | 07 |
| Q.2 | (a) | List out the various instruments used for power quality measurement. | 03 |
| | (b) | Define flicker. List reasons responsible for flicker. | 04 |
| | (c) | Explain EMI mitigation methods in detail. | 07 |
| OR | | | |
| | (c) | Explain effect of harmonics on (1) transformers and (2) capacitor banks. | 07 |
| Q.3 | (a) | Discuss the sources of voltage sag. | 03 |
| | (b) | Write short note on voltage regulators. | 04 |
| | (c) | Explain the responsibilities of the suppliers and users of electrical power. | 07 |
| OR | | | |
| Q.3 | (a) | Differentiate grounding and bonding. | 03 |
| | (b) | Explain power quality issues with a system containing DG. | 04 |
| | (c) | List and explain different power quality issues affected by DG. | 07 |
| Q.4 | (a) | Explain active and reactive power factor in brief. | 03 |
| | (b) | Define displacement power factor and true power factor and list out the different methods for power factor improvement. | 04 |
| | (c) | Explain application of synchronous condensers for power factor improvement. | 07 |
| OR | | | |
| Q.4 | (a) | Write a note on harmonic analyzer. | 03 |
| | (b) | Discuss the Capacitor switching transient. | 04 |
| | (c) | Mention the types and causes of transients and explain any two in brief. | 07 |
| Q.5 | (a) | State the essential elements of a grounding system. | 03 |
| | (b) | Write short note on importance and application of True RMS meter. | 04 |
| | (c) | Explain application of Ferro resonance transformer. | 07 |
| OR | | | |
| Q.5 | (a) | Define the following terms. (1) Inrush current (2) Bonding (3) Form factor. | 03 |

- (b) List out the power quality terminology. www.FirstRanker.com www.FirstRanker.com 04
(c) Explain the main steps to monitor the power quality problems at site. 07

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