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Question Paper Code : 21385

B.E/B.Tech DEGREE EXAMINATION, MAY/JUNE 2013.

Eighth Semester

Electrical and Electronics Engineering

EE 2028/EE 801 – POWER QUALITY

(Regulation 2008)

Time : Three hours Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Define voltage imbalance.

2. What is the need for power quality standards?

3. What are causes of short interruptions?

4. How voltage swell differs from transient?

5. What are the causes for oscillatory voltage transients?

6. Define ferro resonance.

7. List the sources of harmonics.

8. Distinguish between passive filter and active filter.

9. What is the need for power quality monitoring?

10. Write the merits of digital power quality analyzers.

PART B — (5 × 16 = 80 marks)

11. (a) Explain the following electrical power quality issues in detail with examples.

(i) Voltage sag (8)

(ii) Voltage swell. (8)

Or

(b) Write short note on the following power quality issues.

(i) Harmonics (8)

(ii) Power frequency variation (8)

12. (a) Discuss the effects of voltage sag and interruption on various electrical equipment.

Or

(b) Discuss any two voltage sag mitigation methods with necessary circuit diagram and waveforms.

13. (a) Discuss the sources of transient over voltages in high, medium and low frequency range.

Or

(b) Discuss different methods of protection of transformers and cables against voltage transients.

14. (a) Explain the waveform distortion due to different types of non liner loads.

Or

(b) (i) Write short note on THD and TDD. (4)

(ii) Discuss the effect of harmonic distortion on transformers and motors. (12)

15. (a) Explain in detail with necessary diagram the working principle and functioning of power quality analyzers.

Or

(b) Briefly discuss the common objectives of power quality monitoring.

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