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Question Paper Code : 60488

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2016

Eighth Semester

Electrical and Electronics Engineering

EE 2028/EE 801/10133 EEE 31 —POWER QUALITY

(Regulations 2008/2010)

(Common to PTEE 2028/10133 EEE 31 – Power Quality for B.E. (Part-Time)
Sixth/Seventh Semester – EEE – Regulations 2009/2010)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. List the major electric power quality issues..
2. Draw the CBEMA curve of power quality.
3. What are three levels of possible solutions to voltage sags and momentary interruption problems?
4. Define active series compensation devices.
5. Define impulsive transients with suitable example.
6. List the important types of arrestor used in protection of cables.
7. What are the differences between harmonics and transients?
8. Define point of common coupling.
9. What is the need for power quality monitoring?
10. What are the advantages of modeling and simulation?

PART B — (5 × 16 = 80 marks)

11. (a) (i) Discuss the major reasons for the growing concern about the quality of electric power by both electric utilities and end users. (8)
- (ii) List of the principle phenomena causing electromagnetic disturbance classified by International Electrotechnical Commission. (8)

Or

- (b) (i) Discuss about the computer Business Equipment Manufactures Associations (CBEMA) curve. Explain the events described in the curve. (10)
- (ii) Differentiate between power quality, voltage quality and current quality. (6)
12. (a) Describe the methodology of estimating voltage sag performance.

Or

- (b) Briefly explain any two voltage sag mitigation techniques with necessary circuit diagram and waveforms.
13. (a) (i) Explain in detail about the surge arrestors and surge suppressors for over voltage protection. (8)
- (ii) What are the advantages of surge arrestors? Discuss about the application module? (8)

Or

- (b) (i) What are the various lightning protection schemes used for over voltage lines? Explain them. (8)
- (ii) Explain the use of PSCAD in analyzing the power quality. (8)
14. (a) (i) Explain the fundamentals of harmonics generation and waveform distortion. (8)
- (ii) Explain the following terms
- (1) Current distortion
- (2) Voltage distortion. (8)

Or

- (b) Explain the method to evaluate harmonic distortion and devices to control.
15. (a) Illustrate the importance of power quality monitoring and assessment.
- Or
- (b) Explain the features of spectrum analyzer and flicker meters.