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Question Paper Code : 21488

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2015

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. Differentiate between voltage sag and voltage swell.
2. Define CBEMA.
3. What are three levels of possible solutions to voltage sag and momentary interruption problems?
4. Define active series compensation devices.
5. Define lightning phenomena.
6. Give any two analysis examples available in PSCAD/EMTP?
7. Mention the harmonic effects on devices and loads.
8. What are the objectives of IEEE and IEC standards?
9. What is meant by online power quality monitoring?
10. What is flicker meter?

PART B — (5 × 16 = 80 marks)

11. (a) Explain for the following related with Power quality.
- (i) Voltage imbalance
 - (ii) Under voltage
 - (iii) Over voltage
 - (iv) Frequency variation (16)

Or

- (b) (i) Discuss the following characteristics of power quality events
- (1) Short duration variations. (8)
 - (2) Long duration variations. (8)
- (ii) Discuss in detail about transients. (8)
12. (a) What are the different voltage sag mitigation techniques? Explain in details. (16)

Or

- (b) (i) Explain the solid state transfer switch with the transfer operation. (8)
- (ii) Discuss the sources of sags and interruption. (8)
13. (a) (i) Explain the problems associated with Ferro resonance. (8)
- (ii) What are the different sources of transient over voltages? Discuss the capacitor switching transient. (8)

Or

- (b) (i) Explain about the underground cable system protection. (8)
- (ii) Explain in detail about the protection of transformers. (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