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Question Paper Code : 41243

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2013.

Seventh Semester

Electrical and Electronics Engineering

080280064 — POWER QUALITY ENGINEERING

(Common to B.E. (Part-Time), Sixth Semester, Electrical and Electronics Engineering)

(Regulation 2008)

Time : Three hours

Maximum : 100 marks

(Codes /Tables/Charts to be permitted, if any, may be indicated)

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What do you mean by voltage quality?
2. Define voltage imbalance.
3. What are the sources of short interruption?
4. Define cost of interruptions.
5. Define voltage sag.
6. What is lightning transient?
7. What are the sources of harmonic distortion?
8. What are controlling harmonics?
9. What is the need for power quality monitoring?
10. List out few power conditioning equipments.

PART B — (5 × 16 = 80 marks)

11. (a) Discuss about various power quality issues. (16)

Or

- (b) Explain the sources and effects of power quality problems. (16)

12. (a) Explain the influence of short interruptions on induction motors, synchronous motors and adjustable speed drives. (16)

Or

(b) Explain the causes of long interruptions and the principle of regulating the voltage. (16)

13. (a) Explain the following causes of sags.

(i) Voltage sag due to motor sag

(ii) Voltage sag due to single line to ground fault

(iii) Voltage sag due to transformer energizing. (16)

Or

(b) What are the types and causes of transients? Explain the principle of over voltage protection. (16)

14. (a) Explain briefly about fundamentals of waveform and the effects of harmonic distortion. (16)

Or

(b) Explain the principles of controlling harmonics and its standards and limitations. (16)

15. (a) Explain how to evaluate power quality monitoring. Briefly explain the deregulation effect on power quality monitoring. (16)

Or

(b) Discuss about planning, conducting and analyzing power quality survey. Explain the mitigation and control techniques for power quality solutions. (16)