Code: 9A02801

R09

B.Tech IV Year II Semester (R09) Advanced Supplementary Examinations, July 2013

PRINCIPLES OF POWER QUALITY

(Electrical and Electronics Engineering)

Time: 3 hours Max. Marks: 70

Answer any FIVE questions
All questions carry equal marks
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1 (a) What is power quality and what is voltage quality? Explain how the power quality is equal to voltage quality.
(b) Write a short note on:
(i) Long duration voltage variations.
(ii) Power frequency variations.
(iii) Oscillatory transients.

2 (a) Explain about sources of sags and interruptions.
(b) Explain about the procedural steps involved in the estimation of voltage sag performance.

3 (a) Explain how the isolation transformers and low pass filters are useful for over voltage protection.
(b) Describe how utilities can deal with problems related to capacitor switching transients.

4 (a) Explain the commonly used indices for measuring the harmonic content in the waveform.
(b) What are the various harmonic sources from commercial loads? Explain.

5 (a) Explain the principles of controlling harmonics.
(b) Write a short note on effects of harmonics.

6 (a) Explain the role of capacitors for voltage regulation.
(b) Explain the principles of regulating the voltage.

7 Explain various power quality contracts in detail.

8 (a) Write short notes on power quality monitoring standards.
(b) Write a short note on historical perspective of power quality measuring equipment.

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