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

- 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.
