Register Number……………………….

M.E. DEGREE EXAMINATIONS: NOVEMBER 2009

Third Semester

POWER ELECTRONICS AND DRIVES

P07PEE13 Power Quality

Time: Three Hours   **Maximum Marks: 100**

Answer ALL Questions:-

PART A (10 x 2 = 20 Marks)

1. Differentiate between sag and under voltage.
2. Define Total Harmonic Distortion.
3. When a sag leads to power interruptions?
4. Where transfer switches are to be installed to mitigate voltage sags in a textile industry?
5. How a transformer is protected against overvoltages.
6. What is ferro resonance?
7. What are interharmonics?
8. How to locate harmonic sources in a power conditioner?
9. Draw the block diagram of a flicker meter.
10. Suggest any two methods to improve power quality in lamp loads.

PART B (5 x 16 = 80 Marks)

11 a) Define the IEC power quality standards.

(OR)

b) Explain the CBEMA curve and ITI curves and its importance in maintaining power Quality standards.

12 a) Explain the impact of voltage sags and mitigation techniques using compensators.

(OR)

b) Explain the fundamental principles of protection and solutions at the end user level.

13 a) Explain the sources of overvoltages.

(OR)

b) Explain how PSCAD tool is used to estimate and analyze the power system disturbances.

14 a) Explain clearly with an industrial load how voltage and current distortions are injected into the system.

(OR)

b) Explain the design of different types of harmonic filters.

15 a) Explain the working of a power quality meters.

(OR)

b) Explain the principle of working of spectrum analyzer.

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