NR/R09

Code No: B4903, D4903, D4306, D5406

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD
M.Tech II Semester Examinations, March/April 2011
POWER QUALITY
(COMMON TO ELECTRICAL POWER ENGINERING, POWER ELECTRONICS, POWER ELECTRONICS & ELECTRIC DRIVES)

Time: 3hours **Max. Marks: 60**

Answer any five questions
All questions carry equal marks

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1. a) What is power quality? What are the causes of PQ deterioration? What are the effects of PQ on equipment?
   b) What are the power quality problems? Draw the flow chart for the PQ problems in any industry? [12]

2. Explain the following terms related with PQ problem.
   a) Sags b) Swell c) Waveform distortion
   d) Harmonics e) Voltage fluctuations [12]

3. a) How can we assess power quality?
   b) What are the remedies to P Q problems? [12]

4. Explain the power quality data collection, analysis of data, data base structure and procession of data of a PQ problem. [12]

5. a) Explain the analysis of sag magnitude in non-radial systems with local generator, sub-transmission loops.
   b) Explain the analysis of sag magnitude for meshed system of power system. [12]

6. Explain the effects of harmonic distortion on
   i) Capacitors ii) Transformers iii) Motors. [12]

7. a) What are the considerations to be taken for monitoring the PQ problem?
   b) Explain the operation of the following power quality measuring equipment. [12]

8. a) Explain design philosophy of filters to reduce harmonic distortion.
   b) Explain the IEEE standards on harmonics. [12]

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