PEPS141 - Elective-I : Electrical Power Quality

P. Pages : 1

Time : Three Hours

6058

GUG/W/23/10973

Max. Marks : 70

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Notes :
1. All questions carry equal marks.
2. Due credit will be given to neatness and adequate dimensions.
3. Assume suitable data wherever necessary.
4. Illustrate your answers wherever necessary with the help of neat sketches.
5. Use of slide rule, Logarithmic tables, Steam tables, Mollier's chart, Drawing instruments, Thermodynamic tables for moist air, Psychrometric charts and Refrigeration charts is permitted.
6. Answer **five** questions.

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1. a) Define the following terms- **7**
   i) Voltage Sag   ii) Voltage fluctuations
   iii) Voltage imbalance   iv) Waveform distortion
   v) Harmonics

   b) What is the need of power quality in power system? Why we are concerned about it? **7**

2. a) "Adjustable speed drives are the source of Inter harmonics" Justify the statement. **7**

   b) Explain the impact of Non-linear load on feeder lines. **7**

3. a) Discuss the Spectrum Analysers and Harmonic analysers. **7**

   b) Explain Flicker Meter. **7**

4. a) Discuss the time domain and frequency domain method for power quality measurement. **7**

   b) Define Voltage flicker. Discuss some of the flicker sources. **7**

5. a) Explain the importance of transducers in monitoring of power quality in power system. **7**

   b) How the following nonlinear load affects the power quality in power system- **7**
   i) Battery charges   ii) Fluorescent lightning

6. a) Explain in detail risk analysis and management in power outages. **7**

   b) Compare the role of active and passive filters in mitigating harmonic distortion? Why & where e-filters used. **7**

7. a) Write algorithm for line extraction of fundamental sequence components from measured samples. **7**

   b) Write a short note on network Reconfiguring device. **7**

8. a) Explain dynamic voltage restorer (DVR). **7**

   b) Explain GE Flicker curve. **7**

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