

PEPS141 - Electrical Power Quality

P. Pages : 1

Time : Three Hours



GUG/W/24/10973

Max. Marks : 70

- Notes :
1. Attempt **any five** questions.
 2. All questions carry equal marks.
 3. Due credit will be given to neatness and adequate dimensions.
 4. Assume suitable data wherever necessary.
 5. Illustrate your answers wherever necessary with the help of neat sketches.
 6. 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.
 7. Use of non-programmable calculator is permitted.

1. a) Write the various IEEE and IEC power quality standards. 7
b) What are the main sources of power transient? Compare the phenomena of impulsive & oscillatory transients on time frame. 7
2. a) What is the adverse effect of ASD on the power system? 7
b) What is meant by power quality? What are the basic power quality measures? 7
3. a) Discuss the Spectrum Analyzers and Harmonic analyzers. 7
b) What is reliability of power system? Describe following reliability indices. 7
i) SAIFI ii) CAIFI iii) SAIDI iv) CAIDI v) MAIF
4. a) What are the two important harmonic indices used in power system? Explain about it briefly. 7
b) Define voltage flicker. Discuss some of the flicker sources. Write notes on common methods for mitigation of flicker. 7
5. a) Explain the importance of transducers in monitoring of power quality in power system. 7
b) Describe with neat sketch. Three phase static AC/DC converter. 7
6. a) Discuss the control strategy for load compensation of DSTATCOM. 7
b) Explain in detail risk analysis and management in power outages. 7
7. a) Write algorithm for -line extraction of fundamental sequence components from measured samples. 7
b) What is custom power park? Discuss various components of custom power parks 7
8. a) What is Voltage Sag Loss Energy Index (VSLEI)? Describe various techniques of mitigation of voltage sag. 7
b) What is Dynamic Voltage Restorer (DVR) Describe its functioning for protecting the sensitive load. 7
