

M. Tech. Electrical Power System (CBCS Pattern) Sem-I
PEPS141 / EP104 - Elective-I : Electrical Power Quality

P. Pages : 1

Time : Three Hours



GUG/W/22/10973

Max. Marks : 70

- Notes :
1. All questions carry equal marks.
 2. answer **five** questions.
 3. Due credit will be given to neatness and adequate dimensions.
 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, Psychometric Charts and Refrigeration charts is permitted.
 6. Assume suitable data wherever necessary.

1. a) What are the causes of disturbances in power system. 7
b) What is power Quality? Why we are concerned about power quality? 7
2. a) "Adjustable speed drives are source of Inter harmonics" Justify the statements. 7
b) Explain power acceptability curves. 7
3. a) Discuss the following power quality measurement equipment. 7
i) Spectrum Analyzer ii) Flicker meter.
b) Explain power quality standards. 7
4. a) Discuss the time domain method and frequency domain method for power quality measurement. 7
b) Describe the Hartley transform algorithm for determining the THD. 7
5. a) Explain the importance of transducers in monitoring of power quality in power system. 7
b) How the following Non-linear load affects the power quality at point & common coupling 7
i) Battery chargers ii) Fluorescent lighting.
6. a) Compare the role of Active & Passive filters in mitigating harmonic distortion? Why & where e-filters used? 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) Explain Fourier & Hartley transform method. 7
8. a) What is Dynamic Voltage Restorer (DVR). Describe its functioning for protecting the sensitive load. 7
b) Explain GE Flicker curve. 7
