Electrical Power System (CBCS Pattern) M. Tech. First Semester (Old-CBS Pattern) CBCS

EP104-A / PEPS141 – Elective – I : Electrical Power Quality

P. Pages : 1 **GUG/W/18/10973**

Time : Three Hours * 3 1 0 0 * Max. Marks : 70

Notes : 1. All questions carry equal marks.
2. Answer **any five** questions.
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 non programmable calculator is permitted.

1. a) What is power acceptability curve? Describe the ITIC curve? **7**

b) What is unbalanced loads? How it affect the power quality of the distribution system? **7**

2. a) What is disturbance in supply voltage? Discuss its impact on the various components of power system. **7**

b) What is reliability of power system. Describe following reliability indices. **7**
i) SAIFI ii) CAIFI
iii) SAIDI iv) CAIDI
v) MAIFI

3. a) What is non – linear load? Discuss the commonly found non-linear loads in the power system and its adverse effects on the system. **7**

b) Discuss the Spectrum Analysers and Harmonic Analysers. **7**

4. a) Discuss various Flicker Measurement Techniques. **7**

b) Discuss the utility of Wavelet Theory in monitoring various Power Quality terms in the Power System. **7**

5. a) Describe the 'Symmetrical Components of Phasor quantities' in analysis of unbalance. **7**

b) What is Voltage Sag Lost Energy Index (VSLEI)? **7**

6. a) What is voltage flicker? What are its causes and what is the impact of flicker on the various power system components. **7**

b) Discuss the classical load balancing problem. **7**

7. a) What are custom power devices? Discuss the Solid State Current Limiter (SSCL) device. **7**

b) Discuss the Voltage Regulation using DSTATCOM. **7**

8. a) What is Dynamic Voltage Restorer (DVR). Describe its functioning for protecting the sensitive load. **7**

b) What is Unified Power Quality Conditions (UPQC). Discuss its configuration and functioning. **7**

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