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Total Number of Pages: 02

**B.Tech**  
**PEEL5403**

**8<sup>th</sup> Semester Regular / Back Examination 2015-16**  
**ELECTRICAL POWER QUALITY**

**BRANCH(S): EEE/ EE**

**Time: 3 Hours**

**Max Marks: 70**

**Q.CODE: W360**

**Answer Question No.1 which is compulsory and any five from the rest.**  
**The figures in the right hand margin indicate marks.**

- Q1** Answer the following questions: **(2 x 10)**
- a) What are the various sources of overvoltages ?
  - b) What do you understand by critical load ?
  - c) Define DC offset and interharmonics ?
  - d) What are the sources of sags and interruptions ?
  - e) Define the terms "dropout" and "dropout voltage" ?
  - f) What are the various utility system lightning protection ?
  - g) What is shielding ? why it is used ?
  - h) What is the effect on transformer due to harmonics ?
  - i) Mention the harmonic sources from industrial loads ?
  - j) What are the steps involved in power quality monitoring?
- Q2** (a) Discuss about the CBEMA curves and explain the events described in the curve ? **(5)**
- (b) Explain how active series compensator helps to provide voltage sag ride to critical load ? **(5)**
- Q3** (a) What are the different voltage sag mitigation techniques? Explain in detail ? **(5)**
- (b) Explain in detail about classification of linear loads and non linear loads used in harmonic studies.?. **(5)**
- Q4** (a) How ferroresonance is different than resonance ? Explain how ferroresonance affects the power quality ? **(5)**
- (b) Define lightning? Discuss in detail about the overvoltages due to lightning and the problems associated with it ? **(5)**

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- Q5** a) Explain in brief about disturbance analyser ? (5)  
b) What is Flicker ? Explain about various sources of flicker ? (5)
- Q6** a) Explain briefly about the following harmonic filters (5)  
a) Passive Filters  
b) Active Filters.  
b) Explain briefly the role of CTs and PTs for monitoring power quality ? (5)
- Q7** a) Explain the role of smart power Quality monitors in power quality monitoring system ? (5)  
b) Explain briefly the various devices for voltage regulations ? , (5)
- Q8** Write Short Notes (Any Two) (5 x 2)  
a) Uninterrupted Power Supply  
b) Harmonic indices  
c) Computer tools for transient analysis
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