

Roll No .....

## MEPE - 205

M.E./M.Tech., II Semester

Examination, December 2015

### Power Quality and Conditioning

Time : Three Hours

Maximum Marks : 70

**Note :** Attempt any five questions. All questions carry equal marks.

1. a) Discuss in detail about the different power quality indices.  
b) Classify the different types of power quality disturbances.
2. a) What are harmonics? Discuss the effect of harmonics on Electrical systems.  
b) Discuss in detail the role of Power Electronics as a source of harmonics.
3. a) What do you understand by Radio interference.  
b) Discuss in detail the classical solutions of elimination/suppression of harmonics.
4. Compare the following power quality improvement techniques giving their relative merits and demerits and area of applications.
  - a) Passive Filters
  - b) Active Filters
  - c) Multipulse converters utilising different transformer connections.

5. a) Discuss in detail about the different improved power quality converter topologies.  
b) What do you understand by the concept of active wave shaping? Explain in detail.
6. Compare the following active wave shaping techniques.
  - a) Constant frequency control
  - b) Constant tolerance band control
7. a) Discuss the causes of Electromagnetic Interference in detail (EMI).  
b) What are the prevalent measures adopted for elimination of E.M.I?
8. Write short notes on any Two of the following.
  - a) E.M.I standards
  - b) Discontinuous current control
  - c) P.W.M converters for power quality improvement
  - d) Active power filter topologies.

\*\*\*\*\*