Total No. of Questions : 8] *[Total No. of Printed Pages : 2*

Roll No .....

MEPS-203

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

Examination, December 2016

Power Quality And Conditioning

Time : Three Hours

Maximum Marks : 70

Note : i) Attempt any five questions.
ii) All questions carry equal marks.

1. a) Define Power Quality. Name and explain different types of power quality issues that affects the power systems depending upon the severity.

   b) How the power quality is affected at different power factor in the power system due to inductance and capacitance effect?

2. a) Describe the major reasons for the growing concern about the quality of electric power by both electric utilities and end users.

   b) Discuss the characteristics of harmonics generated by the different types of industrial load.

3. a) Explain the fundamentals of harmonics generation and waveform distortion.

   b) What are the filters used in harmonics analysis? Explain active and passive filters.

392

4. a) Explain briefly how the phenomena of current distortion affects the voltages distortion under the presence of harmonics.

   b) Describe the contribution of converter configurations to supply harmonics.

5. a) What are the causes of electromagnetic interference and how it can be minimized? Explain.

   b) Compare constant tolerance band control and variable tolerance band control used in active wave shaping of input line current.

6. a) Describe the operation of PWM Converter as a voltage source active filter with circuit and wave diagrams.

   b) Explain in brief the classical solution methodologies to eliminate harmonics and their drawbacks.

7. a) Describe the electromagnetic interference standard and EMI elimination techniques.

   b) Explain discontinuous current control technique for wave shaping.

8. Write short notes on any two of the following:
   a) Design of harmonic filters.
   b) Improved power quality converter topologies
   c) EMI generation

******

393