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

Roll No .....

MEPE-205

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

Examination, December 2017

Power Quality And Conditioning

Time : Three Hours

Maximum Marks : 70

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

1. a) Explain the concept of voltage fluctuation in power supply. Draw the waveform of three-phase supply showing the balanced and unbalanced loads. 7
   b) Explain the impact of power quality on utility and consumer. 7

2. a) Define harmonics. Explain why even harmonics are normally absent in the power conditioners. 7
   b) Explain briefly about the phenomena of current and voltage distortions under the presence of harmonics. 7

3. a) What are Passive Filters? Explain the factors to be considered for designing passive filters. Also explain their limitations. 7
   b) Discuss basic principle of shunt active filters. 7

4. a) What are the causing of conducted electromagnetic interference and how it can be eliminated? 7
   b) What do you understand by active frequency control technique for active wave shaping of input line current? 7

5. a) What are the objectives of standardization of Power Quality Phenomena? State and explain important standard used to define and classify power quality disturbances. 7
   b) Explain improved single phase power quality converter system using its system configuration and control scheme. 7

6. a) Discuss the concept of voltage source active filter and current source active filter. 7
   b) What is meant by constant Tolerance Band Control for active wave shaping of input line current? 7

7. a) What is the ideal criterion of Harmonics Filter Designing? Explain the important factors used to calculate the size of a distribution harmonic filter. 7
   b) Explain the principle of series compensation. Mention its merits and demerits with respect to shunt compensation. 7

8. Write short notes on any two of the following: 2×7=14
   a) Three-phase improved power quality converter
   b) Discontinuous current control
   c) Power conditioning equipment
   d) Design of harmonic filter

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