Roll No. | | | | | | | | | | | | | **Total No. of Pages : 02**

Total No. of Questions : 08

M.Tech. (Electrical Engg.) (Power System) (2018 Batch) (Sem.–2)

POWER QUALITY

Subject Code : EEPS-204C-18

M.Code : 76091

Time : 3 Hrs. **Max. Marks : 60**

INSTRUCTIONS TO CANDIDATES :

1.Attempt any FIVE questions out of EIGHT questions.

2.Each question carries TWELVE marks.

1. What is power quality? Why are we concerned about power quality? Discuss the various types of disturbances causing power quality degradation in a power system.

2. Define harmonics. Discuss the various sources of harmonics. What are the negative effects of harmonics on power system equipment and load?

3. a) Explain the power quality problem created by shunt capacitors, transformers and drives.

   b) Write a short note on power Quality Standards and Guidelines.

4. a) Define power factor? What are the causes of low power factor?

   b) A wound coil that has an inductance of 180mH and a resistance of 35Ω is connected to a 100V 50Hz supply. Calculate :

      i) The impedance of the coil,

      ii) The current,

      iii) The power factor, and

      iv) The apparent power consumed.

      Also draw the resulting power triangle for the above coil.

5. A 400 V, 50 Hz, 3 phase line delivers 200kW at 0.8 pf lagging. It is desired to raise the line power factor to unity by installing shunt capacitors. Calculate the capacitance of each unit if they are connected in :

   a) Star

   b) Delta

6. Discuss the role of static var compensator (SVC) in a power system. Name the various types of SVC systems and explain any one of them in detail.

7. Write a short note on :

   a) Dynamic voltage restorer

   b) Grounding

8. a) What do you mean by power system transients? What are the causes of these transients?

   b) Explain the series active power filtering technique for harmonic cancellation.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.