PVP 12

Code: **EEPC1T5C**

I M.Tech-I Semester-Regular Examinations-March 2014

POWER QUALITY

(POWER SYSTEM CONTROL AND AUTOMATION)

Duration: 3 hours Marks: 5x14=70

Answer any FIVE questions. All questions carry equal marks

1 a) Describe the current waveform drawn by Fluorescent Lamps. Will it causes any power quality problems? If so explain it. 4 M

b) How to detect the power quality problems? 3 M

c) Discuss the power quality versus equipment immunity. 7 M

2 a) Explain the following terms with a waveform of neat sketch 7 M

i) Flickers

ii) Voltage dip

b) Categorize the power quality problems based on short and long duration and explain any one from each. 7 M

3 a) What is the need of estimating voltage sag performance? 7 M

b) Explain the equipment sensitivity to voltage sags with the help of CBEMA equipment sensitivity characteristics. 7 M

4 a) Explain the operation of dynamic voltage restorer for correction of voltage sag/swell. 7 M

b) What is the need for protection against over voltages? What are the basic principles of over voltages protection of load equipments? 7 M

5 a) Discuss the generation of harmonics from AC Drives with neat diagram. 7 M

b) Explain the harmonic distortion. How the parallel resonance causes the root of most problems with harmonic distortion on power systems. 4 M

c) An Industrial load bus is connected to a 2MVA, 6% transformer, with a capacitor bank of 200kVAr, then calculate the resonant harmonic (h_r) of the system. 3 M

6 a) What are the advantages and disadvantages of distributed generation. 7 M

b) Explain in detail, solutions for the following power quality issues related to interconnection of distributed sources onto the power grid. 7 M

i) DG Grounding Issue
ii) Voltage Flicker
iii) Out-of-step reclosing
iv) Harmonic Distortion

7 a) Explain about typical wiring and grounding problems. 7 M

b) What is the difference between a ring ground and a halo ground? Will an earth ground bond to an equipment cabinet reduce noise? 7 M

8 a) Discuss in detail about the instruments used for analyzing non sinusoidal voltage and currents. 7 M

b) Explain in detail about the flicker meter. 7 M