Code: **EEPC1T4**

PVP 12

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

REACTIVE POWER COMPENSATION & MANAGEMENT

(POWER SYSTEM CONTROL AND AUTOMATION)

Duration: 3 hours Marks: 5x14=70

Answer any FIVE questions. All questions carry equal marks

1 a) Explain the objective in load compensation. 7 M

b) Discuss the need for reactive power compensation in transmission system. 7 M

2 What are the types of compensations and explain each of them in detail with suitable examples. 14 M

3 a) What are the main objectives of series compensation? 7 M

b) Explain 7 M

i) Passive shunt compensation

ii) Compensation using synchronous condensers with examples.

4 a) Explain the mathematical modeling of a reactive power co-ordination. 7 M

b) Explain in detail the concepts of 7 M

i) effects of harmonics & how to compensate it.

ii) effects of electromagnetic interference.

5 Explain in detail about

a) Power tariffs 7 M

b) kVAr based tariff penalties for voltage flickers & harmonics voltage levels 7 M

6 Explain Economical Planning of Capacitor Placement in detail. 14 M

7 What is the purpose of using capacitors on user side in power system reactive power management? Also explain in detail the deciding factors & type of available capacitor & its characteristics. 14 M

8 a) Explain Reactive power control requirements in electric traction system & arc furnace. 7 M

b) Explain the operation of distribution transformer & furnace transformer in detail & also explain the remedial measures of arc furnace. 7 M