

Code: EEPC1T4

I M.Tech-I Semester-Regular Examinations-February 2016

**REACTIVE POWER COMPENSATION & MANAGEMENT
(POWER SYSTEM CONTROL AND AUTOMATION)**

Duration: 3 hours

Max. Marks: 70

Answer any FIVE questions. All questions carry equal marks

1. a) What are the factors which are considered for load Compensator? 7 M

b) Derive the expression of Compensating Suceptances in terms of the phasor line currents for Load Compensation using Symmetrical Components. 7 M
2. a) What are the methods of improving voltage stability using passive compensation? 7M

b) With the help of Maximum Power flow, Compare Series and Shunt compensation. 7 M
- 3.a) Explain the response of synchronous condenser to voltage drop condition. 7 M

b) With diagram explain the response of TCR Compensator during voltage depression and voltage rise. 7 M

4. a) Explain the causes and effect for the Harmonics and Electromagnetic interferences. 7 M
- b) Explain the causes and effect for the sag and swells in frequency in transmission systems. 7 M
- 5.a) Explain briefly the basic methods of load shaping in demand side. 7 M
- b) Explain how the penalties levied for voltage flickers and harmonics present in power supply? 7 M
6. a) What are the different types system losses? Explain briefly the loss reduction methods. 8 M
- b) What is Reactive Power planning? List and Explain the objectives of reactive power planning in distribution systems. 6 M
7. What is the purpose of using capacitors on user side for reactive power management? What are the deciding factors for the selection of capacitors? 14 M
8. a) Discuss the reactive power requirements for a electric traction system. 7 M
- b) Discuss the power factor of an arc furnace in detail. 7 M