

Code: EEPC2T2

I M.Tech-II Semester–Regular/Supplementary Examinations – July 2017

**FACTS CONTROLLERS
(POWER SYSTEM CONTROL AND AUTOMATION)**

Duration: 3 hours

Max Marks: 70

Answer any FIVE questions. All questions carry equal marks

1. a) Explain the importance of transmission inter connection.
7 M

- b) What are the limits of loading capability of transmission line?
7 M

2. a) Briefly explain about the basic types of FACTS controllers and also discuss the importance of different types of FACTS controllers.
7 M

- b) Discuss in brief, the benefits from FACTS controllers.
7 M

3. a) Explain the basic concept of voltage source converter with neat circuit diagram.
7 M

- b) Derive the fundamental and RMS voltage harmonics for square wave single phase bridge converter.
7 M

4. a) Explain about the transformer connection for 12 pulse output. 7 M
- b) Explain the pulse width modulation converter with neat circuit diagram and waveforms. 7 M
5. a) What are the objectives of shunt compensation? 7 M
- b) Explain how to prevent voltage instability by using shunt compensating at receiving end? 7 M
6. Explain the following for controllable var generation. 14 M
- i) Thyristor switched capacitor
- ii) Hybrid var generator.
7. a) Compare between STATCOM and SVC. 7 M
- b) Explain the transfer function and dynamic performance of SVC and STATCOM. 7 M
8. a) Explain the Thyristor – Controlled Series Capacitor. 7 M
- b) Describe the Static Synchronous Series Compensator with circuit and phasor diagrams. 7 M