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Roll No

MEPS-201**M.E./M.Tech., II Semester**

Examination, June 2017

Reactive Power Control and FACTS*Time : Three Hours**Maximum Marks : 70*

- Note :** i) Attempt any five questions.
ii) All questions carry equal marks.

1. a) Describe the principle of operation of basic types of facts controller.
b) Explain the unified power flow controller with its phasor diagram.
2. a) Explain the basic principle and different modes of operation of thyristor controlled series compensator.
b) Describe the application of thyristor controlled series compensator for damping electromechanical oscillations and mitigation of sub-synchronous resonance problem.
3. a) Explain Heffron-Phillips model of a multimachine system installed with TCPS.
b) Describe the linearised model of power systems installed with FACTS based stabilizers.
4. a) Discuss the selection of installing locations and feed back signal for FACTS based stabilizers.
b) Explain the design of robust FACTS based stabilizers installed in SMIB system by phase compensation method.

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5. a) Explain the power transmission control using controllable series compensation.
b) Distinguish the operation of power transmission control using static synchronous series compensator and unified power flow controller.
6. a) Discuss the general considerations of static var compensator control strategy.
b) Explain the principle of operation and control characteristics of STATCOM.
7. a) Describe the control strategy of FACTS devices for transient stability improvement.
b) Explain the steady state model of unified power flow controller.
8. Write short notes on any two of the following :
 - a) Interline power flow controller
 - b) Thyristor controlled phase angle regulator
 - c) Heffron-phillips model of a SMIB system with TCSC
 - d) General structure of the FACTS devices control

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