Roll No .....

MEPS - 201

M.E./M.Tech., II Semester

Examination, July 2015

Reactive Power Control And FACTS

Time : Three Hours

Maximum Marks : 70

Note : Solve any five questions. Assume suitable data if necessary.

1. a) Explain basic principle of TCSC using blocked thyristor mode of operation.
   b) Explain principle of operation of STATCOM. Also discuss its role in power system stability improvement.

2. a) Explain the basic application and principle of operation of Interline Power Flow Controller (IPFC).
   b) Explain how TCSC can damp-out electromechanical oscillations.

3. a) Explain the operation of SSSC and compare it with TCSC.
   b) Describe general form of linearized power system model Discuss significance of each variable involved in it.

4. a) Describe Phillips-Heffron model of SMIB system installed with SVC.
   b) Describe Phillips-Heffron model of SMIB system installed with UPFC.

5. a) Why phase compensation is needed in power system stabilizers? Discuss robust FACTS based stabilizer.
   b) Discuss how Phillips-Heffron model is extended for Multi-Machine system.

6. a) Discuss the locations of FACTS based stabilizers in power system.
   b) Discuss what criterion followed for signal selection for FACTS based stabilizers.

7. a) Explain the power system behavior under sudden change in load demand.
   b) Describe control scheme of power transmission using series compensation.

8. Explain control scheme for power transmission control using unified power flow controller and compare it with use of STATCOM.

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