

Roll No

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

Examination, December 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 concept and need of reactive power.
b) Discuss the objectives of flexible ac transmission systems and its benefits in power system network.
2. a) Draw and explain the advantages of slope in dynamic characteristics of SVC.
b) Explain the conventional transmission capabilities of unified power flow controller.
3. a) Describe the principle of operation and V-I characteristics of STATCOM.
b) Explain the phenomenon of Sub Synchronous Resonance (SSR) and the technique to mitigate it.
4. a) Explain the power flow control and oscillation damping in two area system using UPFC.
b) Describe the Heffron-Phillips model of multi-machine system installed with SVC.

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5. a) Discuss the contribution of damping torque by flexible ac transmission system based stabilizers installed in SMIB systems.
b) Describe the factors and procedure for the selection of installing location of FACTs based stabilizers.
6. a) Explain how SVC enhances transient stability of a power system.
b) Describe the control of power transmission using phase shifting transformer.
7. a) Enumerate the general considerations of controllable series compensation control strategy.
b) Draw and explain the general structure of the FACTs devices control.
8. Write short notes on any two of the following :
a) Static synchronous series compensator
b) Power transmission control using UPFC
c) Linearized model of power systems installed with FACTs based stabilizers.
d) Interline power flow controller

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