Total No. of Questions : 8] [Total No. of Printed Pages : 2

MEPS/MEHP–102

M. E./M. Tech. (First Semester)
EXAMINATION, Dec., 2010
POWER SYSTEM DYNAMICS ANALYSIS AND CONTROL

Time : Three Hours

Maximum Marks : 100

Minimum Pass Marks : 40

Note : Attempt any *five* questions. All questions carry equal marks.

1. (a) Discuss the various states of operation of the system. Also define the voltage collapse.
   (b) Develop the steady state model of the synchronous generator.
2. (a) Define the following :
   (i) Voltage stability
   (ii) Voltage collapse
   (iii) Mid-term and long-term stability
   (b) Describe the system dynamic problems.
3. (a) Describe the different types of system model.
   (b) Describe the analysis of transient stability.
4. (a) Describe the, transient analysis of a synchronous machine.

   (b) Explain the Parks transformation.
5. (a) Perform the modelling of excitation system.
   (b) Describe the Prime mover control system.
6. (a) Explain the classical model of the synchronous machine for stability studies. What are the short-comings of classical model ?
   (b) Describe the saturation model of synchronous machine in stability study.
7. (a) What do you understand by static var compensator.
   (b) Explain the modeling of a transmission line.
8. (a) Describe the system state matrix including power system stabilizers.
   (b) Describe Philips Heffron model.