Code: EE8T3A

IV B.Tech-II Semester–Regular/Supplementary Examinations–April 2017

POWER SYSTEMS DYNAMICS AND STABILITY
(ELECTRICAL & ELECTRONICS ENGINEERING)

Duration: 3 hours   Max. Marks: 70

Answer any FIVE questions.   All questions carry equal marks

1. a) Draw the schematics of stator and rotor circuits of a synchronous machine and develop the basic equations of stator and rotor of synchronous machine. Draw all the necessary illustrations.   7 M

   b) Discuss on the Modelling of different types of loads.
                                                                      7 M

2. a) Explain the Steady state stability limit.   7 M

   b) Explain the dynamic state stability limit.   7 M

3. a) Derive the numerical solution of Multi-Machine Transient Stability Problem Using Classical Machine Model.   7 M

   b) Prepare the list of assumptions associated with the mathematical model of a synchronous machine.   7 M

4. a) Explain the concept of equal area criterion. How can it
be used to study transient stability?   7 M

b) Derive the Numerical solution of the Swing Equation.
                                                          7 M

5. a) Explain the concept of Multi machine stability in detail.
                                                          7 M

b) Discuss in detail about the Transient stability
enhancement of Multi Machine system.   7 M

6. a) Explain the effect of governor action on power system
stability.   7 M

b) Explain the Effect of exciter on power systems stability.
                                                          7 M

7. a) Classify the different types of Exciters. Mention the
Drawbacks of DC Excitation systems.   7 M

b) Explain Rotating Self Excited Exciter with direct loading
Rheostatic type in detail.   7 M

8. a) Explain in detail about the operation of Rotating
   Amplifier Regulators and draw the VI characteristics.

   7 M

   b) Discuss in detail about the Static Voltage Regulators.

   7 M