

23286

**M.Tech. 2nd Semester (Electrical Power System)**

**Examination, May-2017**

**POWER SYSTEM DYNAMICS AND STABILITY**

**Paper-MTEPS-201**

*Time allowed : 3 hours]*

*[Maximum marks : 100*

*Note : Attempt any five out of eight questions. Each question carries equal marks*

1. (a) Explain Synchronous machine model in state space form.  
(b) Discuss basic features of the dynamics of a Power System.
2. In case of two machine system, obtain an expression for the steady state stability limit. Show that the maximum steady state power transmitted over the line will be greatest when  $X = \sqrt{3} R$ .
3. (a) Explain stability by eigen value approach.  
(b) Discuss state space representation of synchronous machine connected to infinite bus.
4. (a) Discuss Digital Simulation of Transient stability.  
(b) Explain machine equations.

23286-P-2-Q-8 (17)

[P.T.O.]

5. (a) Discuss concept of multimachine stability.  
(b) Explain multimachine transient stability under any one Faulty condition.
6. (a) Explain effect of exciter on Power system stability.  
(b) Describe effect of automatic voltage regulator on stability.
7. What are the various types of excitation systems ? Draw the neat sketch of brushless excitation system and describe it.
8. Write technical notes on :
  - (i) Dynamic stability
  - (ii) Rotating self excited exciter with direct acting rheostatic type.