NR/R09

Code No: A4901/C4901/C6401

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

M.Tech I - Semester Examinations, March/April 2011

POWER SYSTEM DYNAMICS

(COMMON TO ELECTRICAL POWER ENGINEERING, POWER ENGINEERING AND ENERGY SYSTEMS)

Time: 3hours **Max. Marks: 60**

Answer any five questions

All questions carry equal marks

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l.a) Explain clearly how the angular stability problem occurs in power system.
b) Derive swing equation. [12]

2. Give detailed description of steady state stability evaluation of SMIB System. [12]

3. Why park's transformation is required? Apply it to transform electrical and mechanical equations of synchronous machine. [12]

4. What are the assumptions made in the derivation of basic equations for a synchronous machine? Derive electrical and mechanical equations of the machine. [12]

5. Why the excitation control is required for an alternator? Show the inclusion additional variables in the mathematical model of a synchronous machine and discuss about its final state space model. [12]

6. Give complete block diagram model of SMIB System. Apply Routh-Hurwidz criterion for stability analysis. [12]

7. With the help of block diagram give the structure of a Power System stabilizer. Explain in detail various components in it. [12]

8. Describe in detail the design procedure of a dynamic compensator for a SMIB system. [12]

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