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M.Tech. (EE) (2019 Batch) (Sem.-2)

POWER SYSTEM DYNAMICS-II

Subject Code : MTEE-201-18

M.Code : 76100

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. Attempt any FIVE questions out of EIGHT questions.

2. Each question carries TWELVE marks.

1. a) Using fundamentals, derive the swing equation for a single generator connected to a parallel lines through the transformer.
b) A two pole 50Hz, 11kV turbo alternator has a rating of 120MW, power factor 0.861 lagging. The rotor has a moment of inertia of 10,000 kgm². Calculate H and M.
2. a) Explain why the synchronous machine rotor self inductances are constant.
b) Discuss the importance of small signal stability with low frequency oscillations of unregulated system.
3. a) Obtain Flux linkage and Voltage equations of a synchronous machine model used in power system dynamic studies.
b) Discuss the large signal rotor angle stability for synchronous machine.
4. a) What are direct methods for assessing stability of power system?
b) Explain the significance of synchronizing and damping torque analysis of a single machine system.
5. a) Draw the functional block diagram of excitation control system of a synchronous generator.
b) Describe the role of each block with justification.

6.
 - a) Derive the equation for multi machine stability criteria.
 - b) Compare the conventional AGC control for hydro power plant with synchronous generator.
7.
 - a) What are techniques used for enhancing the stability of power system? Explain them.
 - b) Draw two equivalent circuits of synchronous machine corresponding to the two axes d and q.
8. Write notes on following :
 - a) Dynamic compensator
 - b) Frequency stability
 - c) AVR

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