

Roll No.

MEHP/MEPS/MTPS-102

M.E./M.Tech., I Semester

Examination, November 2019

Power System Dynamics Analysis and Control

Time : Three Hours

Maximum Marks : 70

- Note:** i) Attempt any five questions.
 ii) All questions carry equal marks.

1. a) Explain the term "Power system stability". Also discuss the concept of rotor angle stability with suitable example. 7
- b) Differentiate between 7
 - i) Voltage stability and Voltage collapse
 - ii) Mid term stability and Long term stability
2. a) Define the terms "System" and "Model". Explain system model with suitable example. 7
- b) Discuss the method of Excitation control of alternator using simplified representation. 7
3. a) Enlist the salient steps for modelling of synchronous machine. Explain parks transformation approach for it. 7
- b) Explain analytical approach to determine the parameters of equivalent circuits of synchronous machine. 7

4. a) Discuss excitation system modelling with suitable diagram for a synchronous machine. 7
- b) Explain the various types of Prime move controllers used in Synchronous machine. 7
5. a) Explain D-Q transformation using L-B variables for a typical long transmission line. 7
- b) Discuss the dynamics of synchronous generator connected to estimate bus using synchronous machine model. http://www.rgpvonline.com 7
6. a) Discuss the role of Power system stabilizer in power system. Enlist two examples. 7
- b) Discuss the various steps for tuning of PSS in Power system. Explain any one method of it. 7
7. a) Explain the procedure to calculate initial conditions in synchronous machine model. 7
- b) Discuss various techniques for analysis of Synchronizing and Damping torque in synchronous machine. 7
8. a) Explain any classical method for analysis of transient stability in synchronous machine. 7
- b) Discuss the working principle of Non-linear oscillators in transmission line. 7

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