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(Following Paper ID and Roll No. to be filled in your Answer Books)

PAPER ID : MD19

Roll No. | | | | | | | | | | |

M. TECH. (Sem.II)

THEORY EXAMINATION 2015-16

ADVANCED POWER SYSTEM STABILITY

Time: **3** Hours Total Marks: **100**

Note : Attempt any five questions. All questions carry equal marks.

1. (a) Explain in detail the power system stability problems.
   (b) Develop the flux linkage equations of the synchronous machine and draw its equivalent circuits?
2. (a) What are the different factors involves for modelling of synchronous machine?
   (b) How the modelling of induction motor is different for various types of loads?
3. (a) Deduce the equation for power while single machine connected to infinite bus system.
   (b) Explain the different modern control techniques for design of machine.
4. (a) Explain the numerical methods used for the analysis of transient stability.
   (b) Explain the factors influencing transient stability.

5. (a) What are the causes of voltage instability? Explain the various system design and operating measures to prevent voltage collapse.

(b) Write note on P-V and Q-V curves in voltage stability.

6. (a) What is power angle diagram? Explain clearly the equal area criterion for studying the transient stability of a power system.

(b) Explain the difference between transient and steady state stability of a synchronous system.

7. (a) What are various methods for improving transient stability?

(b) A double-circuit three phase feeder connects a single generator to a large network. The power corresponding to the limit of steady state stability for each circuit is 100 MW. The line is transmitting 80MW when one of the circuit is suddenly switched out. Determine with reference to appropriate diagram whether the generator is likely to remain in synchronism.

8. (a) Write note on safety measures taken to prevent voltage collapse.

(b) Explain small signal stability of a multi machine system.

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