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Total No. of Pages : 02

Total No. of Questions : 08

M.Tech. (EE) (2018 & Onwards) (Sem.–1) POWER SYSTEM DYNAMICS-I Subject Code : MTEE-102-18 M.Code : 75216

Time : 3 Hrs.

Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

- 1. Attempt any FIVE questions out of EIGHT questions.
- 2. Each question carries TWELVE marks.

Q1. a) Explain the angular stability problem of a synchronous machine system.	[6]
b) Define per unit system. Write procedure for using per unit system.	[6]
Q2. a) Give detailed description of steady state stability evaluation of SMIB System.	[6]
b) A generator is connected to an infinite bus through an external impedance of jXe. If Eb = Vto = 1.0 p.u. Find the initial conditions.	
Assume xe = 0.28 p.u. Consider the generator data : xd = 1.8, xq = 1.7, x'd =	0.18,
x'q = 0.25,Ra = l 0.0'[],,Td" = 0.5 Sec, Tq" = 0.1 Sec, H = 5 Sec, and TB = 50Hz. Q3. a) Express the role of Park's transformation for equations of synchronous machine.	[6] [5]
b) Obtain Flux linkage and Voltage equations of a synchronous machine model used power system dynamic studies. Q4. a) Write assumptions used in derivation of basic equations for a synchronous mach	in [7] ine. [5]
b) Draw two equivalent circuits of synchronous machine corresponding to the two ax and q.	es d [7]
Q5. a) Explain the methods of excitation control used for an alternator.	[6]
b) Obtain the small signal modelling of a single machine system.	[6]
Q6. Express complete block diagram for developing simplified model of synchronous mach	ine. [12]

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Q7. a) Draw the block diagram of PSS.	
b) Obtain the simplified model of a single machine connected to infinite bus.	[7]
Q8. Write short notes on following :	
a) Small signal frequency model	[4]
b) Philips-Heffron model	[4]
c) Prime mover controller.	[4]

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.