Sanjay Ghodawat University, Kolhapur

Established as State Private University under Govt. of Maharashtra. Act No XL, 2017

2018-19
EXM/P/09/01

Year and Program:2018-19 **School of Technology** **Department of F Y M.Tech**

Course Code: ELE503 **Course Title: Power System Dynamics** **Semester – I**

Day and Date: Wednesday 19/12/2018 **End Semester Examination (ESE)** **Time: 10.am -1.00pm. Max Marks: 100**

Instructions:
1) All questions are compulsory.
2) Assume suitable data wherever necessary.
3) Figures to the right indicate full marks.

		Marks	Bloom's Level	CO
Q.1	**Solve the followings**			
a)	Describe major assumptions behind the system model	07	L_2	CO1
	OR			
a)	Obtain simplified representation of excitation control.	07	L_2	CO1
b)	State & Derive equation for park's transformation	08	L_3	CO1
	OR			
b)	Describe Equivalent circuit of synchronous machine.	08	L_3	CO1
Q.2	**Solve the followings**			
a)	Explain with the help of block diagram various components of excitation system	07	L_3	CO2
	OR			
a)	Derive state equation from transfer function for system representation	07	L_3	CO2
b)	Determine stator and rotor equation for synchronous machine model	08	L_3	CO3
	OR			
b)		08	L_4	CO3
Q.3	**Solve any Two**			
a)	Examine system dynamic problem with current status and recent trends.	08	L_3	CO1
b)	Determine per unit quqntities, stator base quantities and rotor base quqntities	08	L_3	CO1
c)	Describe DC excitation system	08	L_4	CO2

	d)	Justify procedure for computation of initial conditions	08	L_3	CO3
Q.4		**Solve any Two**			
	a)	Develop block diagram for small signal analysis	09	L_3	CO4
	b)	Derive characteristic equation of Routh Hurwitz criterion	09	L_3	CO4
	c)	Interpret synchronizing torque and damping torque	09	L_3	CO4
Q.5		**Solve any Two**			
	a)	Judge the use of Control signals in PSS	09	L_4	CO4
	b)	Examine block diagram of PSS with washout circuit, dynamic compensator and limiter	09	L_4	CO4
	c)	Justify basic concepts in applying PSS	09	L_4	CO4
Q.6		**Solve any Three**			
	a)	Develop state equation for simplified model and detailed models	06	L_4	CO4
	b)	Describe nonlinear oscillations- Hopf Bifurcation.	06	L_3	CO4
	c)	Examine recent development and future trends in PSS.	06	L_4	CO4
	d)	Explain dynamic compensator analysis of single machine infinite bus system with and without PSS	06	L_3	CO4

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