



Sanjay Ghodawat University, Kolhapur

2018-19

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

FY M Tech

School of Technology

Semester II

ELE508.2 Monday

Power System Operation and Control

Max Marks: 100

27-05-2019

End Semester Examination (ESE)

Time: 3 Hrs

2.30 to 5.30 p.m.

- Instructions for Students:**
- 1) Use of non-programmable calculator is allowed
 - 2) All questions are compulsory

Q1		Solve any Two	Marks	COs	Level
	a)	Explain the overview of Power System Operation and Control with Block diagram.	09	1	2
	b)	Discuss about cold reserves and hot reserves	09	1	6
	c)	Peak Demand of a Generating Station is 25 MW. The Load Factor, Plant Capacity Factor and Plant Use Factor are 0.6, 0.5 and 0.72 respectively. Determine (a) Load Factor (b) Daily Energy Produced (c) Reserve Capacity of Plant	09	2	3
Q2					
	a)	Explain in detail about interconnected operation?	04	1	2
	b)	Explain the term load frequency control.	12	2	2
		OR			
	b)	Explain the function of automatic load frequency Control	12	2	2
Q3					
	a)	Define System blackout Problem	04	2	1
	b)	Discuss how the Dynamic Programming applied to find the solution of hydro thermal scheduling problem.	12	3	2

Q4		Solve any Two	Marks	COs	Level
	a)	Explain Lagrange method for solution of economic schedule.	09	4	2
	b)	The fuel cost in \$ / h for two 800 MW plants is given by $F_1 = 400 + 6.0 PG_1 + 0.004 PG_1^2$ $F_2 = 500 + b_2 PG_2 + c_2 PG_2^2$ where PG_1, PG_2 are in MW (a) The incremental cost of power, λ is \$8 / MWh when total demand is 550MW. Determine optimal generation schedule neglecting losses.	09	3	3

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		(b) The incremental cost of power is \$10/MWh when total demand is 1300 MW. Determine optimal schedule neglecting losses. (c) From (a) and (b) find the coefficients b2 and c2.			
	c)	A generator is supplying a load. An incremental change in load of 4 MW requires generation to be increased by 6 MW. The incremental cost at the plant bus is Rs 30 /MWh. What is the incremental cost at the receiving end?	09	4	3
Q5					
	a)	What are the different operating states of a power system?	04	2	1
	b)	What is EMS? What are its major functions in power system operation and control?	12	4	4
		OR			
	b)	Briefly discuss the various functions of energy control center	12	2	6
Q6	a)	What are the functions of SCADA?	04	4	1
	b)	Explain about power system security	12	2	2

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