

HALL TICKET NUMBER

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PACE INSTITUTE OF TECHNOLOGY & SCIENCES::ONGOLE
(AUTONOMOUS)

IV B.TECH I SEMESTER END SUPPLEMENTARY EXAMINATIONS, MARCH-2023
POWER SYSTEM OPERATION AND CONTROL
(EEE Branch)

Time: 3 hours

Max. Marks: 60

Note: Question Paper consists of Two parts (Part-A and Part-B)

PART-AAnswer **all** the questions in Part-A (5X2=10M)

Q.No.	Questions	Marks	CO	KL
1.	a) What do you mean by economic scheduling?	[2M]	1	1
	b) What are the advantages of operation of hydrothermal combinations?	[2M]	2	1
	c) What is the prime objective of load frequency control?	[2M]	3	1
	d) What are the differences between economic dispatch and unit commitment?	[2M]	4	1
	e) What is the basic principle of series compensation?	[2M]	5	1

PART-BAnswer **One Question from each UNIT (5X10=50M)**

Q.No.	Questions	Marks	CO	KL
UNIT-I				
2.	a) What is an incremental fuel cost? How is it used in thermal power plant operation?	[5M]	1	2
	b) Explain the components of production cost of power.	[5M]	1	2
OR				
3.	a) Discuss and define the loss formula coefficients.	[5M]	1	2
	b) Derive the condition for economic scheduling of generators in a plant without losses.	[5M]	1	3
UNIT-II				
4.	Explain the problem of scheduling hydrothermal power plants and what are the constraints in the problem	[10M]	2	4
OR				
5.	Explain the hydroelectric power plant models with neat sketches.	[10M]	2	2
UNIT-III				
6.	a) Derive the model of speed governing system and represent it by block diagram	[5M]	3	3
	b) Describe the steady state response analysis of isolated power system under the controlled case.	[5M]	3	3
OR				
7.	Describe the response of isolated two area power system under the controlled case.	[5M]	3	4
UNIT-IV				
8.	a) Describe the constraints used in unit commitment problem.	[5M]	4	2
	b) Explain optimal unit commitment problem in electrical power system.	[5M]	4	2
OR				
9.	a) Explain the cost function for unit commitment.	[5M]	4	2

	b)	Explain the Priority ordering method of unit commitment problem.	[5M]	4	2
UNIT-V					
10.	a)	Explain the problem associated with reactive power.	[5M]	5	2
	b)	How does the tap changing transformer aids in voltage control?	[5M]	5	2
OR					
11.	a)	Describe the load compensation of transmission lines	[5M]	5	3
	b)	Explain the features of Shunt and series compensation techniques of transmission system.	[5M]	5	3
