

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VII EXAMINATION – SUMMER 2025****Subject Code:3170919****Date:27-05-2025****Subject Name: Power System Operation and Control****Time:02:30 PM TO 05:00 PM****Total Marks:70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

		MARKS
Q.1	(a) Explain concept of regulation and deregulation in power system.	03
	(b) Explain functioning of vertically integrated power system with simple diagram.	04
	(c) What is need of restructured power system. Write function of various entities in it.	07
Q.2	(a) Enlist various Public Sector and Private players in Indian Power Sector.	03
	(b) Write four important features of Electricity Act 2003.	04
	(c) Discuss major problems being faced by Indian power sector.	07
	OR	
	(c) Discuss application of state estimation with suitable diagram.	07
Q.3	(a) What is state estimation in power system.	03
	(b) What is difference between static and dynamic state estimation.	04
	(c) Describe least square estimation technique for state estimation.	07
	OR	
Q.3	(a) Explain concept of power system security.	03
	(b) Draw and explain contingency analysis flowchart.	04
	(c) Discuss various operating states of power system with security point of view.	07
Q.4	(a) Explain excitation control for generator.	03
	(b) Explain load frequency control with suitable diagram.	04
	(c) Explain turbine speed governing system.	07
	OR	
Q.4	(a) What is voltage regulation of transmission line?	03
	(b) What is surge impedance loading? What is its expression.	04
	(c) Explain various methods of voltage control for transmission line?	07
Q.5	(a) What are the objectives of load forecasting?	03
	(b) What is difference in short, medium and long term load forecasting.	04
	(c) Explain regression analysis method of load forecasting.	07
	OR	
Q.5	(a) Enlist various factors affecting load demand.	03
	(b) What is load survey?	04
	(c) Explain historical background of implementation of deregulation in the world.	07
