Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

PDDC - SEMESTER–VIII EXAMINATION – SUMMER 2016

Subject Code:X80904 **Date:05/05/2016**

Subject Name:Advanced Power System-II

Time:10:30 AM TO 01:00 PM **Total Marks: 70**

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1	**(a)**	Explain the structure of deregulated industry.	**07**
	(b)	Write a short note on application of power system state estimation.	**07**
Q.2	**(a)**	A lossless three phase 60 Hz transmission line has inductive reactance of 0.325 Ω/km while capacitive admittance is 5.2 μS/km. If the system voltage at the sending end is 500 kV (L-L) and the line length is 300 km, find (1) The electrical line length of the line. (2) The surge impedance of the line. (3) The surge impedance loading.	**07**
	(b)	What is state estimation of power systems? Explain static state estimation of power systems.	**07**
		OR	
	(b)	Define and classify voltage stability.	**07**
Q.3	**(a)**	What is black out in power system? Describe process of restoration after a black out.	**07**
	(b)	Write a short note on Electricity Act 2003.	**07**
		OR	
Q.3	**(a)**	Explain the structure of a traditional vertically integrated electric industry.	**07**
	(b)	Write a short note on reactive load forecast.	**07**
Q.4	**(a)**	Discuss power system security in brief.	**07**
	(b)	Explain transition from an alert state to an emergency state of a power system with suitable example.	**07**
		OR	
Q.4	**(a)**	Why reactive compensation is required. Explain line series compensation.	**07**
	(b)	Write a short note on load forecasting.	**07**
Q.5	**(a)**	Derive expression of midpoint voltage in a line in terms of real power flow and line length.	**07**
	(b)	Describe power system operating states with the help of a neat figure.	**07**
		OR	
Q.5	**(a)**	Explain load forecasting methodology.	**07**
	(b)	Discuss phenomena of voltage collapse in brief. Enlist the main power system disturbances that contribute to voltage collapse.	**07**

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