Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VIII EXAMINATION – SUMMER 2016

Subject Code:180906 **Date:16/05/2016**

Subject Name:Advanced Power System II (Department Elective - 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 Static State Estimation of Power system.	**07**
	(b)	Describe different methods for Reactive power compensation for voltage stability enhancement.	**07**
Q.2	**(a)**	Show that for a lossless transmission two-bus mode, Q-V quantities are closely coupled.	**07**
	(b)	A 100km, 400-KV lossless transmission line has system reactance of 0.25Ω/km per phase and source reactance of 25% of line reactance. Find voltage regulation when load side power factor is of 0.8 lagging. Assume a power transfer over the line is of 800MW.	**07**
		OR	
	(b)	Derive the expression for critical power angle of receiving end voltage at voltage stability limit for a two-bus power system.	**07**
Q.3	**(a)**	Discuss relation of voltage stability and rotor angle stability.	**07**
	(b)	Draw and explain voltage profile and current profile of an uncompensated radial transmission line at No-Load condition.	**07**
		OR	
Q.3	**(a)**	Explain long term load forecasting using economic models.	**07**
	(b)	Discuss the power system restoration after a black-out.	**07**
Q.4	**(a)**	What is a vertically integrated power utility? State its limitations.	**07**
	(b)	Explain different power system operating states.	**07**
		OR	
Q.4	**(a)**	State the objectives of short-term, medium-term and long term load forecasting.	**07**
	(b)	Explain regression analysis for the short-term load forecasting.	**07**
Q.5	**(a)**	Explain application of power system state estimation in load dispatch centre.	**07**
	(b)	Describe the treatment of Bad data in power system state estimation.	**07**
		OR	
Q.5	**(a)**	Discuss present scenario of power system structures in India.	**07**
	(b)	Explain contingency analysis related to power system security analysis.	**07**

****