Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

PDDC - SEMESTER–VII • EXAMINATION – WINTER 2013

Subject Code: X 70904 **Date: 10-12-2013**

Subject Name: Advanced Power System - I

Time: 10.30 am - 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)**	What is synchronous condenser? What are its applications?	**07**
	(b)	Compare synchronous condenser and static capacitor for reactive power compensation.	**07**
Q.2	**(a)**	Compare different SVCs.	**07**
	(b)	What is AGC? How primary and secondary control in AGC works? Also explain transformer tap changer control.	**07**
		OR	
	(b)	What are the requirements of an ideal control system for HVDC link? Draw and explain the diagram of hierarchical control scheme for a HVDC link.	**07**
Q.3	**(a)**	Explain conventional methods of real power control in the transmission line.	**07**
	(b)	Discuss in detail about various sources and sinks of reactive power in power system.	**07**
		OR	
Q.3	**(a)**	What is meant by compensation? Discuss shunt and series compensation in power system.	**07**
	(b)	Sketch and explain characteristics of an ideal & realistic static VAR system.	**07**
Q.4	**(a)**	Explain load compensation and system compensation with the help of phasor diagram.	**07**
	(b)	"Power transmitted by bipolar DC line is same as that of 3-ph AC line" – Prove it.	**07**
		OR	
Q.4	**(a)**	Discuss in detail – different types of HVDC links.	**07**
	(b)	Discuss in detail – Equipments for a typical HVDC transmission scheme.	**07**
Q.5	**(a)**	Compare with positive and negative points for HVDC and EHVAC transmission.	**07**
	(b)	Compare HVDC power transmission with current source converter and voltage source converter.	**07**
		OR	
Q.5	**(a)**	Write a detail note on – Causes and consequences of harmonics in HVDC system.	**07**
	(b)	Name the FACTS devices and explain each in brief.	**07**

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