Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

ME – SEMESTER III (NEW) – • EXAMINATION – SUMMER 2016

Subject Code: 2732903 **Date:03/05/2016**

Subject Name: Power Electronics for Power System

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)**	Define FACT controllers. Explain the basic types of FACT controller.	**07**
	(b)	Give the expression for active and reactive powers in terms of d-q components.	**07**
Q.2	**(a)**	Explain advantage and application of FACT controller.	**07**
	(b)	Discuss Instantaneous reactive power theory.	**07**
		OR	
	(b)	Discuss Reference frame theory.	**07**
Q.3	**(a)**	Explain the principle and operation of STATCOM with its characteristics.	**07**
	(b)	Discuss the operation of Thyristor controlled reactor (TCR) along with its characteristic.	**07**
		OR	
Q.3	**(a)**	Explain operation of Fixed Capacitor Thyristor Controlled Reactor (FC-TCR) with neat diagram.	**07**
	(b)	Write a short note on Static VAR Compensator (SVC).	**07**
Q.4	**(a)**	What is objective of series compensator? Give the comparison between Series and Shunt compensator.	**07**
	(b)	Write a short note GTO Controlled Series Capacitor (GCSC).	**07**
		OR	
Q.4	**(a)**	Write a short note on Thyristor Controlled Series Capacitor (TCSC).	**07**
	(b)	Explain Static Synchronous Series Compensator (SSSC) with neat diagram	**07**
Q.5	**(a)**	Explain the operation of Unified Power Flow Controller (UPFC) with vector diagram	**07**
	(b)	Discuss Constant extinction angle and Constant ignition angle control in HVDC system.	**07**
		OR	
Q.5	**(a)**	Discuss Individual phase control and Equidistant firing angle control in HVDC system.	**07**
	(b)	With diagram explain Multi pulse bridge converter in HVDC system.	**07**

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