Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

ME – SEMESTER-1 (NEW) EXAMINATION – WINTER 2016

Subject Code: 2710707 **Date:06/01/2017**

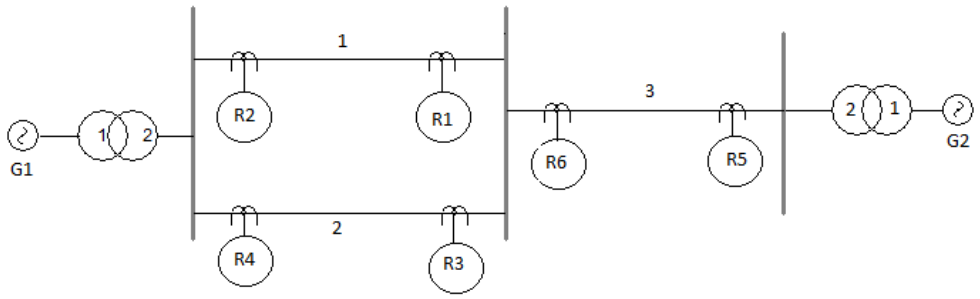
Subject Name: Advanced Power System Protection & Switchgear

Time: 2:30 pm to 5:00 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 Signal Conversion subsystem of Numerical relay in detail.	**07**
	(b)	What is LINKNET? Draw and discuss generalize LINKNET flow chart for over current relay.	**07**
Q.2	**(a)**	Figure shows the single line diagram of power system network. Using the flowchart of LINKNET structure, logically find out the backup relay for the PRIMARY R_2.	**07**



	(b)	Explain the method of Discrete Fourier Algorithm for phasor estimation for Numerical relay.	**07**
		OR	
	(b)	What is Anti Aliasing error? Discuss the Aliasing Effect in Numerical relay and how to overcome the Aliasing effect with diagram.	**07**
Q.3	**(a)**	What is reclosing? Explain different factors governing application of reclosing.	**07**
	(b)	Explain Single shot reclosing operation with breaker contacts operation during the cycle.	**07**
		OR	
Q.3	**(a)**	Explain briefly the Voltage and Angular synchronism check characteristics with respect to reclosing relay.	**07**
	(b)	Explain the precautions for automatic reclosing of circuit breakers.	**07**
Q.4	**(a)**	What is Adaptive relaying? Explain the concept of Adaptive relaying in detail.	**07**
	(b)	What is Wide Area protection? Explain Wide Area Phasor measurement technology in detail.	**07**
		OR	
Q.4	**(a)**	What is islanding? Discuss issues with islanding and list methods of islanding detection.	**07**
	(b)	Discuss load-shedding with special considerations for industrial system.	**07**
Q.5	**(a)**	Discuss how the frequency gets affected due to loss of generators in a system? Why does load shedding become necessary?	**07**
	(b)	Explain the working of Induction Cylinder type frequency relay. Draw its characteristic for a typical operational delay of 6 cycles.	**07**

OR

Q.5	**(a)**	Why series compensation is provided? Discuss briefly fault with un-bypassed series capacitors.	**07**
	(b)	State and explain briefly the reasons for favoring series compensation of long EHV transmission lines.	**07**

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