GUJARAT TECHNOLOGICAL UNIVERSITY ME - SEMESTER-I(New course)• EXAMINATION – WINTER- 2015

Subject Code: 2710707Date: 04/01/2016Subject Name: Advanced Power System Protection & SwitchgearTime: 2:30 pm to 5:00 pmInstructions:

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

Q.1	(a) (b)	Draw basic block diagram of digital relay & explain any one subsystem in detail. Explain Sampling theorem with reference to digital relay.	07 07
Q.2	(a)	Explain algorithm to prepare LINKNET structure and also determine back up relay	07
	(b)	Figure-1 shows a single line diagram of a power system network. Using the flow chart of LINKNET structure, logically find out the backup relay for the PRIMARY R_3 .	07
		OR	
	(b)	Figure-2 shows a single line diagram of a portion of a power system network. Determine the PS & TDS of ground relays R_1 , R_2 & R_3 . The PS & TDS of R_4 are 10% and 0.1 respectively. The relays have the setting range of 10-40% of 1 Amp. in seven equal steps. The excitation current of each CT core is 50 mA. The relevant current for single line to ground fault is given in figure-2.	07
Q.3	(a)	What is Adaptive Relaying? Write a brief note on Adaptive Relaying.	07
	(b)	What is the need of Wide Area protection? Explain Synchronized sampling in brief.	07
Q.3	(a)	What is rate of frequency decline? Explain importance of Load Shedding for	07
	(b)	Explain the method of Full-Cycle Fourier algorithm for phasor estimation. What are its advantages?	07
Q.4	(a)	Explain following terms with reference to Reclosing relay. (1) LLDB/LBDL control+ (2) Instantaneous Trip Lock-out (3) Intermediate Trip Lock-out	07
	(b)	What is Reclosing? Explain factors governing application of Reclosing.	07
Q.4	(a)	Write a short note on One-Short Vs Multi-Short Reclosing relay.	07
	(b)	Explain the main considerations for the applications of Instantaneous Reclosing.	07
Q.5	(a)	Explain the criteria for deciding the number of Load Shedding steps for a Load Shedding.	07
	(b)	Write short note on Induction Cylinder under frequency relay.	07
Q.5	(a)	What is Degree of Compensation? Explain the voltage profile of Series Compensated transmission line.	07
	(b)	Explain different relaying problems associated with Series Compensated transmission in	07



Figure - 1




