

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-VII (NEW) - EXAMINATION – SUMMER 2018

Subject Code:2170908

Date:01/05/2018

Subject Name:Switch Gear and Protection

Time:02.30 PM to 05.00 PM

Total Marks: 70

Instructions:

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

		MARKS
Q.1	(a) Define: i) P.S.M. ii) Restraining Torque iii) Burden	03
	(b) Give differences between protective CT and measuring CT	04
	(c) With neat sketch explain constructional features and working principal of IDMTL relay.	07
Q.2	(a) Explain the concept of current discrimination for the protection of radial feeder.	03
	(b) Explain harmonic restrain relay.	04
	(c) Explain REF protection of power transformer.	07
	OR	
	(c) Draw detailed circuit diagram of biased differential protection of Dy1 power transformer. Show that during internal L-G fault on star side of power transformer, biased differential protection operates successfully.	07
Q.3	(a) Explain superiority of distance protection for the protection of transmission line.	03
	(b) Explain impedance relay.	04
	(c) Explain in detail: negative sequence protection for an alternator.	07
	OR	
Q.3	(a) Explain the phenomenon of power swing	03
	(b) Explain reactance relay.	04
	(c) Explain field failure protection of an alternator.	07
Q.4	(a) What is the need of Carrier Aided Protection of transmission line?	03
	(b) List advantages of numerical protection.	04
	(c) List and explain various protections used for an induction motor.	07
	OR	
Q.4	(a) List various possible options of the carriers for the carrier aided relaying purpose.	03
	(b) Explain numerical power transformer protection.	04
	(c) Explain DC Circuit Breaker	07
Q.5	(a) Explain the effect of natural frequency on TRV.	03
	(b) Discuss Slepian's theory of arc extinction.	04
	(c) Discuss constructional features and working of Air CB.	07
	OR	
Q.5	(a) Explain the effect of power factor on TRV.	03
	(b) Discuss energy balance theory of arc extinction.	04
	(c) Discuss constructional features and working of MOCB.	07
