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GUJARAT TECHNOLOGICAL UNIVERSITY PDDC SEMESTER VII- EXAMINATION – SUMMER 2017

Subject Code: X70901 Date: 27/04/2017 **Subject Name: Power System Protection** Time: 02.30PM to 05.00PM **Total Marks: 70 Instructions:** 1. Attempt all questions. 2. Make suitable assumptions wherever necessary. 3. Figures to the right indicate full marks. (a) Explain the terms: (i) Plug setting multiplier (ii) Time setting multiplier with **Q.1** 07 reference to IDMT relay. What is their significance in relay operation? (b) Discuss the basic requirements of protective system. What is primary and 07 auxiliary protection? What is universal torque equation? Using this equation, derive the following **Q.2** (a) 07 characteristics: (i) Impedance relay (ii) Reactance relay (iii) Mho relay **(b)** What do you mean by field suppression of an alternator? How is it achieved? 07 **(b)** Discuss the protection employed against loss of excitation of an alternator. 07 0.3 What is Buchholz's? Discuss its working principle and construction. 07 (a) **(b)** Discuss the advantages and disadvantages of Numerical relay. 07 0.3 Explain with help of block diagram construction of Numerical relay. 07 What are the basic elements of protective system? Explain importance of each 07 element. What is the role of C.T. and P.T. in protection? Which class of C.T. is used for 0.4 **07** (a) protection purpose only? (b) Explain carrier current protection is used for transmission line protection with **07** help of single line diagram. OR Explain restricted earth fault protection, is used for generator. **Q.4** 07 (a) Explain induction disc type relay with its construction and working. 07 **(b)** 0.5 Explain over fluxing protection of transformer. 07 (a) Why is back up protection required? Discuss different types of back up **(b)** 07 protections used. OR (a) Discuss the comparison between FIR and IIR filter. 07 **Q.5 (b)** Explain the distance protection used for long transmission line. 07
