

M. TECH.
(SEM-II) THEORY EXAMINATION 2017-18
Advanced Protecting Relaying

Time: 3 Hours

Total Marks: 100

Note: Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt *all* questions in brief. 2 x 10 = 20

- a. Explain the basic element of the static relay.
- b. What is I.D.M.T Characteristics of a relay.
- c. Write short note on thermal relay.
- d. Write short note on reactance relay.
- e. Write short note on under and over frequency relay.
- f. What is comparator in protective relay.?
- g. State the disadvantages of basic impedance relay.
- h. Discuss the type of faults encountered in transformers.
- i. Write the advantages of digital relays.
- j. Explain operation of basic trip circuit.

SECTION B

2. Attempt any *three* of the following: 10 x 3 = 30

- a. Explain the protective schemes employed to protect formulating and switching effects
- b. Classify various type of over current relay. Give their application along with characteristics.
- c. Explain the importance of protective scheme employed in power system.
- d. What is comparator in a protective relay? Derive general equation for amplitude comparator.
- e. What is zone of protection? Discuss various zone of protection of a power system with help of line diagram.

SECTION C

3. Attempt any *one* part of the following: 10 x 1 = 10

- (a) What are different types of fault occurring in power system. Explain in brief.
- (b) Explain in detail multi-input comparator with block diagram.

4. Attempt any *one* part of the following: 10 x 1 = 10

- (a) Write the essential qualities of protective relay..
- (b) Explain the principle of operation of Microprocessor based over current relay with suitable diagram.

5. **Attempt any *one* part of the following:** **10 x 1 = 10**
- (a) Explain the implementation of over current relay using induction disk.
 - (b) Write short note on following terms related to protective relaying.
(i) protective scheme (ii) protective system (iii) plug-setting multiplier (iv) Trip circuit.
6. **Attempt any *one* part of the following:** **10 x 1 = 10**
- (a) How logic gate applied in protective relay? Explain clearly relay logic with help of logic gate.
 - (b) Explain the principle of operation of digital relay. Explain the various component with the help of suitable diagram.
7. **Attempt any *one* part of the following:** **10 x 1 = 10**
- (a) Explain the working and application of Buchholz Relay .
 - (b) Describe with the help of neat sketches the setup of carrier current relaying employed in transmission line protection.

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