Printed pages: 02 Sub Code:MTPS202

Paper Id: 229202 Roll No: [redacted]

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.