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BTECH
(SEM VII) THEORY EXAMINATION 2024-25
POWER SYSTEM PROTECTION

TIME: 3 HRS

M.MARKS: 100

Note: Attempt all Sections. In case of any missing data; choose suitably.

SECTION A

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

Q no.	Question	CO	Level
a.	Discuss frequency of occurrence of different types of faults on overhead lines.	1	K1
b.	Define time setting multiplier?	1	K1
c.	Define IDMT relay?	2	K2
d.	Discuss the advantages of differential relay?	2	K2
e.	Define Plug setting multiplier (PSM).	3	K2
f.	Explain the need for Pilot wire protection.	3	K2
g.	Illustrate the two applications of Minimum oil circuit breaker and Bulk oil circuit breaker.	4	K2
h.	Define the insulation level of a circuit breaker.	4	K2
i.	Discuss the differences of Static versus Electromagnetic relays.	5	K2
j.	Explain the reliability and security of Static relays.	5	K2

SECTION B

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

a.	Explain in detail the Zones of protection	1	K1
b.	State and classification of distance relay?	2	K2
c.	Discuss the protection of transformer with Merz-price protection scheme.	3	K2
d.	Explain the different methods of testing of circuit breaker?	4	K2
e.	Write short notes on Schmitt Trigger with Transistor level Detector.	5	K2

SECTION C

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

a.	Define potential transformer and explain the construction of potential transformer?	1	K1
b.	State the classification of protective schemes.	1	K1

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

a.	Explain Mho relay and draw operating characteristics of Mho relay.	2	K2
b.	Discuss the directional induction type over current relay.	2	K2

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

a.	Explain the restricted earth fault protection of generators. What is the effect of earth resistance on percentage of winding unprotected?	3	K2
b.	Discuss the protection employed for the field winding of the alternator against ground faults.	3	K2

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

a.	Explain the construction and working of Vacuum circuit breaker.	4	K2
b.	State the sequence of operation of circuit breaker, isolator and earthing switch while closing.	4	K2

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

a.	Explain advantages of Static Relays.	5	K2
b.	State the various functional circuits in a static relay.	5	K2