

# BTECH

Roll No:

(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. $2 \ge 10 = 20$			
Q no.	Question	CO	Level	
a.	Discuss frequency of occurrence of different types of faults on overhead	1	K1	
	lines.			
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	5
j.	Explain the reliability and security of Static relays.	5	K2	0V
2.	SECTION B Attempt any <i>three</i> of the following:	10 x	3 = 30	
	Eventsin in Astail the Zones of enstantion	1	V1	

## SECTION B

2.	Attempt any <i>three</i> 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		

#### SECTION C

3.	Attempt any <i>one</i> part of the following:	10 x	10 x 1 = 10	
a.	Define potential transformer and explain the construction of potential	1	K1	
	transformer?			
b.	State the classification of protective schemes.	1	K1	
4.	Attempt any <i>one</i> 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	3	K2	
	earth resistance on percentage of winding unprotected?			
b.	Discuss the protection employed for the field winding of the alternator against	3	K2	
	ground faults.			
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	4	K2	
	while closing.			
7.	Attempt any <i>one</i> part of the following:		1 = 10	
a.	Explain advantages of Static Relays.	5	K2	
b.	State the various functional circuits in a static relay.	5	K2	