

Reg.No.:



VIVEKANANDHA COLLEGE OF ENGINEERING FOR WOMEN

[AUTONOMOUS INSTITUTION AFFILIATED TO ANNA UNIVERSITY, CHENNAI]

Elayampalayam – 637 205, Tiruchengode, Namakkal Dt., Tamil Nadu.

Question Paper Code: 8008

B.E. / B.Tech. DEGREE END-SEMESTER EXAMINATIONS – MAY / JUNE 2024

Fifth Semester

Electrical and Electronics Engineering

U19EE517 – POWER SYSTEM PROTECTION AND SWITCHGEAR

(Regulation 2019)

Time: Three Hours

Maximum: 100 Marks

Answer ALL the questions

Knowledge Levels	K1 – Remembering	K3 – Applying	K5 - Evaluating
(KL)	K2 – Understanding	K4 – Analyzing	K6 - Creating

PART – A

(10 x 2 = 20 Marks)

Q.No.	Questions	Marks	KL	CO
1.	Define and differentiate the essential qualities of Protection (i) Selectivity and (ii) Sensitivity	2	K2	CO1
2.	Classify the functions of protective relays.	2	K2	CO1
3.	Recall the terminologies used in Protective Relay.	2	K1	CO2
4.	What is Frequency Relay? Mention its Applications.	2	K1	CO2
5.	List the limitations of Merz Price Protection.	2	K1	CO3
6.	Interpret the problems arising in Differential Protection in Power transformer.	2	K2	CO3
7.	What is Recovery voltage? Mention its applications.	2	K1	CO4
8.	How capacitive current is interrupted?	2	K2	CO4
9.	List the characteristics of Air blast circuit breaker.	2	K1	CO5
10.	What are the hazards imposed by oil when it is used as an Arc quenching medium?	2	K1	CO5

PART – B

(5 x 13 = 65 Marks)

Q.No.	Questions	Marks	KL	CO
11.	a) List the types of Lightning Arresters. Explain principle and operation of any two Lightning Arresters. (OR)	13	K2	CO1
	b) What are the causes of over voltage on a power system? Illustrate the phenomenon of lightening.	13	K2	CO1
12.	a) What are static relays? Illustrate the digital protection schemes and electromagnetic relay based protection scheme for generators and transmission lines. (OR)	13	K2	CO2
	b) Illustrate the construction and principle of induction type over current relay applications.	13	K2	CO2
13.	a) Explain various types of faults that occurs in generator and the protection Scheme available for the same. (OR)	13	K3	CO3
	b) Illustrate i. Differential protection of alternators. ii. Infer the protective scheme employed for the bus bar protection.	13	K2	CO3
14.	a) What is an arc voltage? Identify the problems of circuit interruption in circuit breaker. (OR)	13	K3	CO4
	b) Summarize the DC circuit breaking and interruption of capacitive current breaking.	13	K2	CO4
15.	a) Explain the principle of operation of SF6 circuit breaker and their applications. (OR)	13	K2	CO5
	b) What are the different methods of testing of circuit breaker? Analyze their Merits and Demerits.	13	K3	CO5

PART – C

(1 x 15 = 15Marks)

Q.No.	Questions	Marks	KL	CO
16.	a) What are methods of neutral earthing? Discuss the methods with neat sketch. (OR)	15	K3	CO1
	b) Analyze the principle of operation of vacuum circuit breaker & how the equipment is used in testing station of circuit breaker.	15	K3	CO5