Q.P. Code: 19EE0224 **R19**

Reg. No: | | | | | | | | | | |

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR

(AUTONOMOUS)

B.Tech III Year II Semester Regular Examinations August-2022

SWITCH GEAR AND PROTECTION

(Electrical and Electronics Engineering)

Time: 3 hours Max. Marks: 60

(Answer all Five Units **5 x 12 = 60** Marks)

UNIT-I

1		For a 132kV system, the reactance and capacitance up to the location of a C.B is 4Ω. And 0.018μF respectively. Calculate the fallowing i) The frequency of transient oscillations. ii) The Maximum value of restriking voltage. iii) The max value of RRRV	L3	12M

OR

2		Explain in detail the operating principle of SF6 circuit breaker? What are its advantages over other types of circuit breakers and for what voltage range it is recommended?	L1	12M

UNIT-II

3	a	What is protective relay? Discuss the basic requirements of relay.	L1	6M
	b	Explain the significance of primary and back up protection.	L1	6M

OR

4		Explain working of microprocessor based over current relay with suitable diagram.	L2	12M

UNIT-III

5	a	Explain internal faults inside the transformer.	L2	6M
	b	Describe the protection of the stator windings of 3-phase alternator against turn-to-turn faults.	L1	6M

OR

6	a	Discuss the percentage differential protection scheme of a transformer.	L1	6M
	b	Explain the working principle of Buch-Holtz relay with neat diagram.	L1	6M

UNIT-IV

7		Draw the schematic diagram of the carrier current protection scheme of lines. Also explain its working principle.	L3	12M

OR

8	a	Discuss the importance of Bus bar protection.	L1	6M
	b	What is back-up protection of bus bar?	L1	6M

UNIT-V

9	a	Explain and sketch neat diagram of valve type lightning arrester.	L1	6M
	b	Discuss the phenomena of a lightning stroke.	L1	6M

OR

10		What are the causes of over voltages arising on power system? Why is it necessary to protect the lines and other equipment of the power system against over voltages?	L1	12M

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