Reg. No.												

Question Paper Code	13769

M.E - DEGREE EXAMINATIONS, APRIL / MAY 2025

Second Semester

Industrial Safety Engineering

24PISPC203 – ELECTRICAL SAFETY

Regulations - 2024

Duration: 3 Hours | Max. Marks: 100

PART - A (10 × 2 = 20 Marks)

Answer ALL Questions

		Marks	K – Level	CO
1.	Define Superposition principle.	2	K1	CO1
2.	Illustrate any four international standards.	2	K1	CO1
3.	List out some of the electrical hazards.	2	K1	CO2
4.	State the causes and effects of corona.	2	K1	CO2
5.	Differentiate between overvoltage and under voltage.	2	K1	CO3
6.	Name the types of conductor joints.	2	K1	CO3
7.	Generalize the safety precautions carried out during the installation process.	2	K1	CO4
8.	List out the safety precautions to be carried out when working with electricity.	2	K1	CO4
9.	Discuss the methods to be followed for increasing the safety for electrical equipment's.	2	K1	CO5
10.	Name few equipment certifying agencies.	2	K1	CO5

PART - B (5 × 13 = 65 Marks)

Answer ALL Questions

			Marks	K – Level	CO
11.	a)	Derive the expression for electric field intensity due to line charge distribution.	13	K2	CO1
		OR			
	b)	Explain the type of protection is given to a transformer as per Indian Electricity Act.	13	K2	CO1
12.	a)	How are hazards classified? Explain about the secondary hazards in detail.	13	K2	CO2
		OR			
	b)	Explain the construction, working and installation of a lightning arrestor.	13	K2	CO2

13.	a)	Draw and explain the connection diagram for overload relay and list out its types and applications.	*13*	*K2*	*CO3*
		OR			
	b)	How ELCB (Earth Leakage Circuit Breaker) is employed as a method for protective scheme.	*13*	*K2*	*CO3*
14.	a)	Explain in detail about underground cables also explain the types of joints in underground cable.	*13*	*K2*	*CO4*
		OR			
	b)	Explain the principle of Fail-Safe design with help of ladder logic.	*13*	*K2*	*CO4*
15.	a)	Explain intrinsic safety barrier with its components also explain about grouping of gases.	*13*	*K2*	*CO5*
		OR			
	b)	With a neat diagram, explain explosion proof electrical apparatus.	*13*	*K2*	*CO5*

PART - C (1× 15 = 15 Marks)

16.	a)	Explain the purpose and examples of safety interlocking. Brief on the functions of a discharge rod.	*15*	*K2*	*CO6*
		OR			
	b)	Explain the special precautions carried out in design, installation, and maintenance of electrical equipment.	*15*	*K2*	*CO6*