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: 80011

B.E. / B.Tech. DEGREE END-SEMESTER EXAMINATIONS – NOV. / DEC. 2025
Seventh Semester
Computer Science and Engineering
U19EEOE8 – ELECTRICAL SYSTEMS IN INDUSTRY
(Common to ECE, BT & BME)
(Regulation 2019)

Time: Three Hours | Maximum: 100 Marks

Answer ALL the questions

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

PART – A

(10 x 2 = 20 Marks)

Q.No.	Questions	Marks	KL	CO
1.	Differentiate between fuse and MCB.	2	K2	CO1
2.	Classify the different types of tariff structures used in LT systems.	2	K2	CO1
3.	Mention the significance of earthing system in commercial installations.	2	K1	CO2
4.	List out the factors affecting selection of protection devices	2	K1	CO2
5.	Justify the environmental impacts of replacing incandescent with LED lighting.	2	K2	CO3
6.	Outline the applications of flood lighting.	2	K1	CO3
7.	Specify the important electrical characteristics of an MCB in low-tension (LT) installation.	2	K1	CO4
8.	State the purpose of power factor correction.	2	K1	CO4
9.	Summarize the functions of panel metering used in automation systems.	2	K2	CO5
10.	Identify the benefits of SCADA in power distribution systems.	2	K2	CO5

PART – B

(5 x 13 = 65 Marks)

Q.No.		Questions	Marks	KL	CO
11. a)	i.	Describe the functions of various components of LT wiring system.	7	K2	CO1
	ii.	Elucidate the working of earth leakage circuit breaker (ELCB) with neat diagram.	6	K2	CO1

(OR)

	b)	Discuss the common causes of electric accidents and propose effective electrical safety practices and preventive measures.	13	K2	CO1
12.	a)	Evaluate the general rules and guidelines for installation of commercial wiring, and illustrate their importance in ensuring safety and reliability.	13	K2	CO2
		(OR)			
	b)	Interpret the procedure for load calculation and determine the required wire size, main switch, distribution board rating, and protective devices for a residential wiring system.	13	K2	CO2
13.	a)	Explore the various energy-saving methods in lighting systems, including use of automatic controls and efficient luminaires.	13	K2	CO3
		(OR)			
	b)	Assess the role of modern luminaries in energy conservation and recommend appropriate lamp types for different applications.	13	K2	CO3
14.	a)	Discuss the factors influencing transformer selection and sizing for industrial plants.	13	K2	CO4
		(OR)			
	b)	Describe the importance of lightning protection and earthing system design for industrial safety.	13	K2	CO4
15.	a)	Explicate the architecture of a SCADA system with neat diagram and its applications in distribution automation.	13	K2	CO5
		(OR)			
	b)	Illustrate the functions of PLC in modern industrial electrical systems and justify its selection over conventional relay control.	13	K2	CO5

PART – C

(1 x 15 = 15 Marks)

Q.No.		Questions	Marks	KL	CO
16.	a)	Analyze the performance characteristics of incandescent, CFL, and LED lamps and explain how their construction influences efficiency, lifespan, and illumination quality.	15	K2	CO3
		(OR)			
	b)	Design a PLC and SCADA-based control and monitoring system for an industrial pump station includes sensor inputs, control outputs, HMI/SCADA interface, and safety interlocks.	15	K2	CO5