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: 80006

B.E. / B.Tech. DEGREE END-SEMESTER EXAMINATIONS – NOV. / DEC. 2024
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.	State the need of contactor and protective relays.	2	K1	CO1
2.	List out steps to be followed for safety precautions against an electric shock.	2	K1	CO1
3.	Write the significance of earthing of commercial installation.	2	K1	CO2
4.	Interpret any two general rules for residential installation.	2	K2	CO2
5.	What do you mean by flood lightning?	2	K1	CO3
6.	Define the terms: Lumen & Lamp efficiency.	2	K1	CO3
7.	Compare the operation of PCC and MCC panels.	2	K2	CO4
8.	Interpret the influencing factors in the selection of transformer.	2	K2	CO4
9.	Write any two advantages of process automation.	2	K1	CO5
10.	Infer the concept of SCADA in distribution automation.	2	K2	CO5

PART – B

(5 x 13 = 65 Marks)

Q.No.		Questions	Marks	KL	CO
11.	a)	Illustrate the single line diagram (SLD) of wiring system with an example.	13	K2	CO1
		(OR)			
	b)	Explain the working of following components - Fuse, MCB, ELCB & Isolator.	13	K2	CO1
12.	a)	Explain the various types of lighting schemes.	13	K2	CO2
		(OR)			
	b)	Explain about the load calculation and sizing of wire in case of residential and commercial wiring systems.	13	K2	CO2
13.	a)	Explain the following terms: Luminous intensity, candle power, space to height ratio, waste light factor, depreciation factor and their impact in the illumination schemes.	13	K2	CO3
		(OR)			
	b)	Infer the principle of operation of CFL & LED with necessary diagrams.	13	K2	CO3
14.	a)	How the specifications of LT breakers, MCB are decided in industrial electrical systems?	13	K2	CO4
		(OR)			
	b)	The monthly readings of a consumer's meter are as follows: Maximum demand = 50 KW, Energy consumed = 36,000 KWh Reactive energy = 23,400 KVAR. If the tariff is Rs 80 per KW of maximum demand plus 8 paise per unit plus 0·5 paise per unit for each 1% of power factor below 86%, calculate the monthly bill of the consumer.	13	K2	CO4
15.	a)	Explain the architecture of SCADA system for distribution automation with neat diagram.	13	K2	CO5
		(OR)			
	b)	Sketch a block diagram of PLC with basic components and its functions.	13	K2	CO5

PART – C

(1 x 15 = 15 Marks)

Q.No.			Questions	Marks	KL	CO
16.	a)	i.	Explain the design steps involved in a lighting scheme for a residential and commercial premises.	8	K2	CO2
		ii.	Infer the significance of energy saving in illumination systems.	7		

(OR)

b)	A supply system feeds the following load. i. a lighting load of 500 kW ii. a load of 400 kW at 0.707 p.f. lagging iii. a load of 800 kW at 0.8 p.f. leading. iv. a load of 500 kW at 0.6 p.f. lagging v. a synchronous motor driving a 540 kW d.c. generator and having overall efficiency of 90%. Evaluate the power factor of synchronous motor so that station power factor may become unity.	15	K2	CO3