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

Question Paper Code: U3506

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2024

Professional Elective

Electrical and Electronics Engineering

21UEEV506 PLC AND SCADA APPLICATIONS

(Regulations 2021)

Duration: Three hours | Maximum: 100 Marks

Answer All Questions

PART A - (10 x 2 = 20 Marks)

1.	What is the function of a latch instruction in PLC programming?	CO1- U
2.	How do PLC systems handle fault detection and diagnostics?	CO1- U
3.	What are some examples of PLC advanced intermediate functions?	CO1- U
4.	How can digital bits be utilized in PLC programming?	CO1- U
5.	Why is security important in SCADA systems? Provide two reasons.	CO1- U
6.	Describe state estimation and its importance in SCADA.	CO1- U
7.	What are registers, and what is their significance in PLC programming?	CO1- U
8.	What are supervisory functions in SCADA, and how do they aid operators?	CO1- U
9.	Briefly explain the function of a light sensor and its industrial applications.	CO1- U
10.	Describe the function of a temperature sensor and its role in industrial processes	CO1- U

PART – B (5 x 16= 80 Marks)

11.	(a)	Explain the Input and Output module of the PLC in detail.	CO1- U	(16)
		Or		
	(b)	Develop an example for ON and OFF-Delay timer	CO1- U	(16)
12.	(a)	Explain PLC trouble shooting, maintenance and Installation in detail.	CO1-U	(16)
		Or		

	(b)	Model a ladder diagram using up-counter and its function with example. Also explain the sequence of operation.	CO1-U	(16)
13.	(a)	Draw and explain SCADA architecture in detail.	CO1- U	(16)
	(b)	Design a SCADA server for any one application of your own with communication networking.	CO1- U	(16)
14.	(a)	Build the ladder logic diagram for any application using program control instructions	CO2 -App	(16)
		Or		
	(b)	Design and explain in detail about SKIP and MCR functions of PLC.	CO2 App	(16)
15.	(a)	Develop a PLC program for Motor control in Ladder logic.	CO2- App	(16)
		Or		
	(b)	Discuss timer and counter functions in PLC programming, including their applications in controlling time-based and count-based processes respectively.	CO2- App	(16)