



End Semester Examination – Nov/Dec – 2016

Code : 14EI2044
Sub. Name : PLC and Automation

Semester : 2016-17 ODD
Duration : 3hrs
Max. marks : 100

ANSWER ALL QUESTIONS (5 x 20 = 100 Marks)

Q. No.	Sub Div.	Questions	Course Outcome	Marks
1.	a.	Explain the Architecture of PLC with a neat diagram.	CO1	14
	b.	What are the advantages of Programming Logic Controllers.	CO1	6
(OR)				
2.	a.	Discuss in detail about the communication options used for Programming Logic Controllers.	CO2	12
	b.	Draw the PLC Ladder diagram for the logic circuit given below.	CO1	8
3.	a.	Vividly explain the “Counter Function - UP Counter” function of the PLC with example ladder logic.	CO3	10
	b.	Draw a relay ladder and ladder logic program to start 3 motors using timer for the following conditions. a. Start Motor 1 (oil pump motor) using short push button. b. Start Motor 2 after 10 seconds of Motor 1 starts. c. Start Motor 3 after 15 seconds of Motor 2 starts.	CO3	10
(OR)				
4.	a.	Vividly explain the “Timer Function – ON delay Timer” function of the PLC with example ladder logic.	CO3	10
	b.	Draw the Ladder Program for automating the Car Park Area and display a “blue light” if the parking has cars of less than 50 and “red light” if the parking has cars of 50. Assume you could count both incoming and outgoing cars.	CO3	10
5.	a.	Write down all the mathematical instructions and explain its operation with example of each.	CO1	20
(OR)				
6.	a.	Differentiate between SKIP and MCR functions of PLC with example programming.	CO1	14
	b.	List out the sequences of Washing Machine Automation.	CO3	6
7.	a.	Explain the operation of supervisory control and data acquisition system with neat diagram.	CO2	16
	b.	Compare fixed and flexible automation	CO2	4
(OR)				

8.	a.	Draw the architecture of DCS and explain the function of each block in detail.	CO2	16
	b.	List out the difference between SCADA and PLC.	CO3	4
<u>Compulsory:</u>				
9.	a.	With the neat diagram, explain the industrial robotics system using PLC.	CO2	20

ALL THE BEST

Course Outcome:

- Identify, formulate, and solve problems related to PLC.
- Design a system, component, or process to meet desired needs of the industrial requirement.
- Implement a complete SCADA project relating to an industrial process or operation.