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5th Sem / ECE, Automation & Robotics, ECE
(For Speech and Hearing Impaired)
Subject : PLC & SCADA

Time : 3 Hrs. M.M. : 60

SECTION-A

Note: Multiple choice questions. All questions are compulsory (6x1=6)

Q.1 Which of the following is a key advantage of PLCs over electromagnetic relays? (CO1)

a) Higher complexity
b) Lower speed
c) Easier to program
d) Higher power consumption

Q.2 What does a PLC do in an industrial control system? (CO1)

a) Provides power to machinery
b) Sends data to the cloud
c) Automates control tasks
d) Measures fuel level

Q.3 Which number system is primarily used in PLC programming? (CO2)

a) Decimal b) Binary
c) Octal d) Hexadecimal

Q.4 What is the function of a timer in ladder logic? (CO4)

a) To perform mathematical calculations
b) To delay an action by a specified amount of time
c) To reset all inputs
d) To increase output voltage

Q.5 SCADA systems are primarily used for: (CO5)

a) Simple calculations
b) Supervisory control and data acquisition
c) Personal communication
d) Low-level signal processing

Q.6 Which file is used in PLC programming to manage counting operations? (CO3)

a) Integer file b) Counter file
c) Status file d) Control file

SECTION-B

Note: Objective/ Completion type questions. All questions are compulsory. (6x1=6)

Q.7 Define the term 'PLC architecture.' (CO1)

Q.8 Name any two manufacturrers of PLCs. (CO1)

Q.9 Write down one advantage of Boolean logic in ladder programming. (CO2)

Q.10 What is the purpose of the Reset instruction in PLCs.? (CO4)

Q.11 Explain the term 'Tag' in SCADA systems. (CO5)

Q.12 What is meant by data logging in SCADA? (CO3)

SECTION-C

Note: Short answer type questions. Attempt any eight questions out of ten questions. (8x4=32)

Q.13 Describe the limitations of relays and explain how PLCs overcome these limitations. (CO1)

Q.14 Draw and explain the basic structure of PLC architecture. (CO1)

Q.15 Explain number system conversions and why they are important in PLC programming. (CO2)

Q.16 Write a short note on the role of Boolean algebra in ladder logic. (CO2)

Q.17 Explain the purpose and function of the Timer data file in PLCs. (CO3)

Q.18 What are counter instructions, and how are they used in PLC programs? (CO4)

Q.19 Describe the steps for creating a simple ladder diagram for turning on a motor with a switch. (CO4)

Q.20 Explain how a create a basic numeric display in a SCADA project. (CO5)

Q.21 Describe any two types of animations that can be created in SCADA. (CO5)

Q.22 Discuss the importance of alarms in SCADA systems. (CO5)

SECTION-D

Note: Long answer type questions. Attempt any two questions out of three questions. (2x8=16)

Q.23 Describe in details the architecture and main components of a PLC. Explain the functions of each component. (CO1)

Q.24 Compare and contrast different logic gates used in ladder diagrams. Provide examples for AND, OR, or and NOT gates in ladder programming. (CO4)

Q.25 Explain the process of creating visibility and text animations in SCADA. Provide an example of where each type would be useful. (CO5)