Q.17 Compare DCS and SCADA in terms of functionality and application.

Q.18 Explain the interfacing of HMI with PLC and its benefits.

Q.19 Describe the properties that make HMI effective in control systems.

Q.20 Discuss about the advantages of PLC over electromagnetic relays.

Q.21 What are the major factors affecting the selection of PLC for industry?

Q.22 Explain the block diagram of SCADA.

SECTION-D

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

Q.23 Explain the counter and their types used in PLCs programming with their ladder diagram.

Q.24 Discuss the various programming languages used in PLCs and their specific applications.

Q.25 Explain the selection criteria for HMI and compare it with SCADA in terms of features and functionality.

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5th Sem / Instrumentation and Control

Subject : PLC, DCS and SCADA

Time : 3 Hrs. M.M. : 60

SECTION-A

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

Q.1 What does PLC stand for?

a) Programmable Logic Controller

b) Programmable Linear Control

c) Power Line Control

d) None of the above

Q.2 Which block in a PLC is responsible for processing inputs?

a) Output Block b) CPU

c) I/O Block d) Power Supply

Q.3 What is one key advantage of PLCs over electromagnetic relays?

a) Higher power consumption

b) Less flexibility

c) Faster operation

d) Large size

Q.4 Which programming language is commonly used in PLCs?

a) Python b) Ladder Logic

c) Java d) C++

Q.5 In a PLC scan cycle, which phase follows input scanning?

a) Output scanning b) Program execution

c) Communication d) Maintenance

Q.6 What does HMI stand for?

a) Human Machine Interaction

b) Human Machine Interface

c) High Machine Interface

d) None of the above

SECTION-B

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

Q.7 The basic unit of a PLC is called a_____

Q.8 Define Sinking and Sourcing.

Q.9 Draw the Ladder diagram of OR gate.

Q.10 DCS stand for

Q.11 Write down any three programming languages used in PLCs

Q.12 Write down any two limitatons of relays.

SECTION-C

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

Q.13 Define the PLC and its importance in automation.

Q.14 Explain the function of WATCH DOG TIMER in PLCs.

Q.15 Discuss the scan cycle in a PLC with neat diagram.

Q.16 Describe any four comparison instructions used in ladder programming.