Q.20 Compare the DCS with SCADA as per industrial point of view

Q.21 What are the selection criteria of HMI

Q.22 Explain all the comparison instruction used in PLC's programming.

SECTION-D

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

Q.23 Explain the Timer and their types used in PLC's programming.

Q.24 Draw the block diagram of SCADA system and advantages of SCADA with respect to DCS.

Q.25 Explain memory structure and I/O structure of PLC.

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Roll No. .....

5th Sem / Instrumentation & 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 Which of the following is NOT a common programming language for PLCs?

a) Ladder Diagram

b) Structured Text

c) Python

d) Function Block Diagram

Q.2 What is the primary function of a HMI in an industrial control system?

a) To directly control field devices

b) To provide a graphical interface for operators to monitor and interact with the system

c) To store large databases

d) To perform complex calculations

Q.3 Which type of timer instruction resets its accumulated value when the input condition goes false?

a) Retentive Timer b) On Timer

c) OFF Timer d) Down Counter

Q.4 Which of the following instruction is used to move data from one memory location to another in a PLC?

a) ADD b) SUB

c) MOV d) DIV

Q.5 What does the term "SCADA" stand for?

a) System Control and Data Acqusition

b) Supervisory Control and Data Analysis

c) Supervisory Control and Data Acquisition

d) Sequential Control and Data Automation

Q.6 Which of the following is a key component of a PLC system?

a) Printer b) Monitor

c) I/O structure d) Keyboard

SECTION-B

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

Q.7 The_____ function in a PLC provides the current time and date.

Q.8 The process by which a PLC sequentially executes its program, checks inputs, and updates outputs is known as the scan cycle (T/F)

Q.9 Expand the DCS

Q.10 Write down any two features of PLCs over relays.

Q.11 Write down any two properties of HMI

Q.12 Explain the any one Arithmetic instruction with Ladder diagram.

SECTION-C

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

Q.13 Explain the function of Watch Dog Timer in PLCs.

Q.14 Describe the basic building blocks of PLC and their functions.

Q.15 What are the different types of programming language used in PLC's?

Q.16 Explain the block diagram of DCS system

Q.17 Explain any four arithmetic instructions with their ladder diagram.

Q.18 Explain the counters used in PLC's programming

Q.19 Explain Scan cycle with neat diagram