Q.24 Explain the selection criteria for HMI and compare it with SCADA in terms of features and functionality.

Q25 Explain the block diagram of SCADA and advantage of SCADA with respect to DCS.

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221552

5th Sem. / Instrumentation & Control
Subject : PLC, DCS & SCADA

Time : 3 Hrs. M.M. : 60

SECTION-A

Note: Multiple Choice Questions. All Questions are compulsory. (6x1=6)

Q.1 Which component of a PLC performs the logic operations?

a) Input module b) CPU

c) Output module d) Power supply

Q.2 The primary advantage of PLCs is :

a) Inflexibility

b) Manual operation

c) Automation & reliability

d) High maintenance

Q.3 What type of instruction is used to measure time intervals in PLC programming?

a) Counter instruction b) Timer instruction

c) Arithmetic instruction d) Logical instruction

Q.4 Which protocol is commonly used for communication in SCADA system?

a) HTTP b) MODBUS

c) FTP d) SMTP

Q.5 The basic structure of an HMI includes:

a) CPU and memory b) Touchscreen & interface

c) Sensors and actuators d) None of the above

Q.6 What is the function of watchdog timer in a PLC?

a) To count events

b) To manage real time clock

c) To monitor system health

d) To reset timers

Section-B

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

Q.7 Define Sinking.

Q.8 Draw the Ladder diagram of AND gate.

Q.9 HMI stand for

Q.10 What are the key differences between a timer instruction and a counter instruction in PLC programming?

Q.11 PLC programming, the MOV instruction in used for mathematical operations.(True/False)

Q.12 The primary use of a Real-Time Clock (RTC) in PLCs is to provide_____.

Section-C

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

Q.13 Describe the basic building blocks of a PLC and their functions.

Q.14 Explain the limitations of electromagnetic relay in automation.

Q.15 What are the different types of programming language used in PLCs?

Q.16 Discuss about the memory structure in PLCs.

Q.17 Explain scan cycle in PLCs.

Q.18 Explain any four arithmetic instructions with ladder diagram.

Q.19 Compare the DCS with SCADA as per the industrial point of view.

Q.20 Explain the function of Watch Dog Timer.

Q.21 Discuss the role of HMI in modern automation systems.

Q.22 Explain the block diagram of DCS.

Section-D

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

Q.23 Explain the timer and their types used in PLCs programming.