Q.33 Draw five symbols of ladder diagram.

Q.34 Write short note on Ethernet addressing modes.

Q.35 What are the various Ethernet addressing modes.

SECTION-D

Note: Long answer type questions. Attempt any two questions out of three questions. (2x10=20)

Q.36 What are the various output modulus of a PLC. Explain with examples.

Q.37 Explain the concept of a bus. Differentiate the working of sensor bus and device bus with examples.

Q.38 Explain the construction, working and application of relays.

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6th Sem / Branch : Mechatronics

Subject:- Industrial Automation

Time : 3Hrs. M.M. : 100

SECTION-A

Note: Multiple choice questions. All questions are compulsory (10x1=10)

Q.1 What is MCR instruction in a PLC

a) Major control reset b) Minor control reset
c) Master control reset d) None of these

Q.2 How many steps does the Programmable Logic Controller have?

a) One b) Two
c) Three d) Four

Q.3 Which of the following is the part of SCADA system

a) PLC b) HMI
c) I/O task d) Alarm task

Q.4 PLCs can be programmed in

a) Ladder logic, structured text
b) Sequential function chart
c) Instruction list
d) All of the above

Q.5 Which of the following is not a PLC instruction

a) NC b) Toff
c) CTU d) DDC

Q.6 Which one of the following is a type of PLCs

a) Fixed, Uniform PLC
b) Modular, uniform PLC
c) Fixed and modular PLCs
d) None of the above

Q.7 In modbus serial line RS 485 maximum length is

a) 1000 m b) 100 m
c) 2000 m d) 100 metre

Q.8 The SCADA systems performs following function

a) Data presentation b) Data acquisition
c) Both a and b d) Programming

Q.9 _____ is not a component of SCADA system

a) Sparyer controller b) Database server
c) Output system d) None of the above

Q.10 PLC is originally designed to replace

a) Hardwired controlled
b) Micro computer
c) DCS
d) Analogue Control

SECTION-B

Note: Objective type questions. All questions are compulsory. (10x1=10)

Q.11 A cold-start means_____

Q.12 Expand PLC.

Q.13 One advantage of a PLC in industrial control compare to relay logic is _____

Q.14 Expand DCS.

Q.15 Name any two control components.

Q.16 Relays work as switches (True/False)

Q.17 Draw format of instructions w.r.t. ON Delay timer.

Q.18 A fieldbus is _____

Q.19 The no. of bits used for addressing in gigabit Ethernet is _____.

Q.20 The second generation SCADA systems were developed or designed in _____?

SECTION-C

Note: Short answer type questions. Attempt any twelve questions out of fifteen questions. (12x5=60)

Q.21 Explain the function and working of field bus.

Q.22 Explain MOV instruction with example.

Q.23 Explain ASI bus and its working.

Q.24 Write short note on HART.

Q.25 Draw the configuration of a general DCS.

Q.26 Explain the functions of wireless gateways.

Q.27 Explain RS485 Interface.

Q.28 What is the function of switches? Explain its applications.

Q.29 Explain any one SCADA system component.

Q.30 Explain the working of Profi-bus.

Q.31 Construct ladder diagram for the logical expression y=AB+BC+CD

Q.32 Compare merits and demerits of SCADA and DCS.