Total No. of Questions : 8]

SEAT No. :

PD4816

[Total No. of Pages : 2

[6404]-345
B.E. (Robotics & Automation Engineering)
PLC AND SCADA PROGRAMMING
(2019 Pattern) (Semester-VIII) (411509)

Time : 2½ Hours] *[Max. Marks : 70*

Instructions to the candidates:

1) ***Answer Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6, Q.7 or Q.8.***
2) ***Assume suitable data, if necessary.***
3) ***Figures to the right indicate full marks.***
4) ***Neat diagrams must be drawn wherever necessary.***

Q1) a) Explain the rules for PLC Ladder Diagram Programming, memory mapping and Input/output addressing. **[8]**

b) Write a program using NO-NC & Counter for any application of PLC. **[9]**

OR

Q2) a) Write Short Notes on, **[8]**

i) Ladder logic

ii) Functional block diagram

b) Explain modes of operation and concepts of Timer, Latching and Interlocking with diagram. **[9]**

Q3) a) What is DCS? How is it used in industry? Also State Advantages and Disadvantages of DCS. **[8]**

b) Explain the networking Protocols- **[9]**

i) Ethernet

ii) CAN open

iii) HART

OR

Q4) a) By using SCADA and DCS in Industry 4.0 compare its advancements to conventional systems. **[8]**

b) State the applications in industry where Field bus, Process bus & Modbus are used. **[9]**

P.T.O.

Q5) a) What are components of SCADA? Explain any three in short. **[9]**

b) How SCADA can be implemented to monitor the Railways, Traffic signals, Thermal Power Station? **[9]**

OR

Q6) a) What is SCADA? Explain issues faced by SCADA in the industry. **[9]**

b) What is wireless SCADA? Explain its basic components. **[9]**

Q7) a) Explain various Inputs and Outputs that can be used in PLC for industrial applications. **[9]**

b) Explain the Following: **[9]**

i) Mechanically operated Switch

ii) Encoder and Decoder

iii) Contactors

OR

Q8) a) Design the Ladder logic, for the example of boxes counting control System and explain each Rung. **[9]**

b) Using Ladder Logic design Sequential switching of motors and Motor interlocking. **[9]**

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