

Total No. of Questions : 8]

SEAT No. :

PD4601

[Total No. of Pages : 2

[6404]-106

B.E. (Electrical Engineering)

PLC & SCADA

(2019 Pattern) (Semester - VII) (403143A) (Elective - III)

Time : 2½ Hours]

[Max. Marks : 70

Instructions to the candidates:

- 1) Attempt Q.1 or Q.2, Q.3 or Q.4, Q.5 or Q.6, Q.7 or Q.8.
- 2) Figures to the right indicate full marks.
- 3) Neat diagrams must be drawn wherever necessary.
- 4) Assume suitable additional data, if necessary.
- 5) Use of non-programmable calculator is allowed.

- Q1)** a) Explain Master control relay (MCR) Instruction with diagram? **[4]**
b) Explain UP counters in details along with its ladder diagram? **[6]**
c) Draw and explain the ladder diagram for car parking. **[8]**

OR

- Q2)** a) Explain rule for proper construction of PLC ladder diagram? **[4]**
b) Explain latching (OTL) and unlatching (OTU) instruction in detail with the example. **[6]**
c) Draw the ladder diagram for following function table. Input I1, I2 output Q1, Q2, Q3, Q4? **[8]**

I1	I2	Q1	Q2	Q3	Q4
0	0	0	1	0	0
0	1	0	1	1	1
1	0	0	1	1	1
1	1	1	0	1	0

- Q3)** a) Draw and Explain the block diagram for PID interfacing with PLC. **[3]**
b) Explain “Adjust and Observe” method of PID Tuning. **[6]**
c) Explain Variable speed AC Motor Drive **[8]**

OR

- Q4)** a) Draw and Explain PID controller module. **[3]**
b) Draw and Explain AC Motor Starter. **[6]**
c) Explain the temperature control using PLC with the help of block diagram. **[8]**

P.T.O.

- Q5)** a) Explain the desirable properties of SCADA. [4]
b) Explain SCADA generations in detail. [6]
c) Explain SCADA system implemented for Petroleum Refining Process. [8]

OR

- Q6)** a) Explain advantages and Disadvantages of SCADA. [4]
b) Draw and Explain typical SCADA system architecture. [6]
c) Explain application of SCADA system in Automatic Substation Control. [8]

- Q7)** a) Explain Applications of DCS. [3]
b) Differentiate between DCS & PLC. [6]
c) Explain Open System Interconnection (OSI) model in detail. [8]

OR

- Q8)** a) Explain Advantages of DCS. [3]
b) Explain DNP3 protocol. [6]
c) Explain TCP/IP SCADA Protocols. [8]

