

Total No. of Questions : 8]

SEAT No. :

**PB2268**

[Total No. of Pages : 2

[6263]-106

**B.E. (Electrical)  
PLC AND SCADA**

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

*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) Neat diagrams must be drawn wherever necessary.
- 3) Figures to the right indicate full marks.
- 4) Assume suitable data if necessary.

**Q1) a)** Draw ladder diagram for following functional table **[8]**

I1, I2/- Inputs and C1, C2, C3, C4-Outputs

I1	I2	C1	C2	C3	C4
0	0	1	1	1	0
0	1	0	1	1	1
1	0	1	0	1	1
1	1	1	1	0	1

b) Explain TON timer along with its three bits. Draw its timing diagram. **[9]**

OR

**Q2) a)** Explain programming equipment. **[7]**

b) Draw a Ladder diagram traffic light controller. **[10]**

**Q3) a)** Explain PID controller for closed loop system. **[9]**

b) Explain adjust and observe method of PID tuning. **[9]**

OR

**Q4) a)** Explain solid state control of DC motor for speed control. **[9]**

b) Explain speed control of DC motor using PLC. **[9]**

**Q5) a)** Explain three generations of SCADA? **[9]**

b) Explain application of SCADA system in water purification system. **[8]**

OR

**P.T.O.**

- Q6)** a) Draw and explain SCADA architecture in details. [8]  
b) Define RTU, MTU, HMI related with SCADA system. [9]

- Q7)** a) Explain relationship among CIP and other protocols. [9]  
b) Explain Device Net protocol in detail. [9]

OR

- Q8)** a) Explain architecture of Distribution Control System (DCS). [9]  
b) Compare PLC and DCS. [9]

