Total No. of Questions : 8]

SEAT No. :

P3316

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B.E. (Electrical)

PLC AND SCADA APPLICATIONS

(2015 Course) (Semester - I) (403142) (End Sem.)

Time : 2½ Hours] *[Max. Marks :70*

Instructions to the candidates:

1) ***All questions are compulsory.***
2) ***Neat diagrams must be drawn wherever necessary.***
3) ***Figures to the right indicate full marks.***

Q1) a) Draw and explain operational sections of CPU. **[7]**

b) Explain output analog devices. **[7]**

c) Explain Retentive Timer (RTO) with all its bits on the ladder diagram and timing diagram. **[8]**

OR

Q2) a) State various advantages and disadvantages of PLC. **[8]**

b) Explain any one type of sensor used for measurement of temperature. **[6]**

c) Draw the ladder diagram for the following function table **[8]**

Inputs – 11, 12 Outputs- Q1, Q2, Q3, Q4

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

P.T.O.

Q3) a) Explain analog signal processing. Assume input 0 to 78 VAC, input module 0 to 5 V DC, 8 bit base. How 61.5 V AC input voltage is converted and scaled to CPU input register? **[8]**

b) Explain the effect of change of integral gain Ki and derivative gain Kd of PID controller on the response of the system. **[8]**

OR

Q4) a) Write a short note on DC motor controller. **[8]**

b) Explain speed control of DC motor using PLC with block diagram only. **[8]**

Q5) a) Draw and explain SCADA architecture in detail. **[8]**

b) State applications of SCADA system. **[8]**

OR

Q6) a) Write a short note on Energy Management Systems (EMS). **[8]**

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

Q7) a) Write a short note on flexible function block (FFB). **[8]**

b) Write a short note on EtherNet/IP protocol. **[8]**

OR

Q8) a) Write a short note on Control and Information Protocol (CIP). **[8]**

b) Explain DNP3 protocol. **[8]**

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