BE- VII | INST / C13GS / Process Automation

31.05.2016

QP Code : 31398

(3 Hours) [Total Marks: 80]

N.B: (1) Question No. **1** is compulsory.
(2) Attempt any **Three** questions from remaining.
(3) Figures to the right indicate full marks.

1. Answer the following:- [20]
   (a) What is automation? Explain its significance.
   (b) What is scan time of PLC? Explain its importance in process control.
   (c) Name any five typical applications of SCADA.
   (d) What is the difference between SIS and BPCS?

2. (a) Draw and explain the working of PLC with the help of functional block diagram. Name any four vendors of PLC with their models. [10]
   (b) Develop a ladder diagram for the car parking system with the following sequence.
   i) If there is no car GREEN light will glow.
   ii) If number of cars between 1 to 9 YELLOW light glows.
   iii) If there are cars above 10 numbers then, RED light will glow.
   It should include GUI, I/O listing, I/O wiring diagram and ladder diagram. [10]

3. (a) What are DCS displays? Explain any two in detail. [10]
   (b) With a neat sketch explain how RTU communicates with the field and MTU in SCADA. [10]

4. (a) What are independent protection layers? Explain the significance of all these layers with reference to SIS. [10]
   (b) What is an MES ? Explain the layers of communication between business and control systems. [10]

5. (a) Explain PLC Timer and Counter instructions with their functions. [10]
   (b) Explain hierarchical computer control for large manufacturing complex. [10]

6. Write Short note on: - [20]
   (a) Alarm lifecycle model.
   (b) Compare DCS, PLC and SCADA.

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