[22]

SARDAR PATEL UNIVERSITY
B.Sc. Examination - 2013 [CBCS]
US05CINS04 - Programmable Logic Controller (PLC) – I
20TH November, 2013, 10:30 am - 1:30 pm

Maximum Marks: 70

Que 1   Multiple choice questions.   **[10]**

1   _____ : a state in which the machine is performing the task for which it is designed.
   i.   ON   ii.   RUN
   iii. JOG   iv.   None of the above

2   _____ switches are not operator accessible.
   i.   Selector   ii.   Palm
   iii. Limit   iv.   None of the above

3   Holding Contact is also known as _____.
   i.   Sealing Contact   ii.   Latching Contact
   iii. Both i) and ii)   iv.   None of the above

4   PLC Consists of _____.
   i.   Input Module   ii.   Output Module
   iii. Programming Device   iv.   All of the above

5   _____ Switch activates when pressed, but remains activated when it is released.
   i.   Momentary Pushbutton   ii.   Flush Pushbutton
   iii. Both i) and ii)   iv.   None of the above

6   Holding down the _____ button will not cause the machine to RUN more than one cycle.
   i.   ON   ii.   RUN
   iii. CYCLE   iv.   None of the above

7   Scan time is typically measured in milliseconds and is related to the _____ .
   i.   Speed of CPU   ii.   Length of the ladder diagram
   iii. Types of instructions in the program   iv.   All of the above

8   Disagreement Circuit is basically _____ operation.
   i.   AND   ii.   NOR
   iii. XNOR   iv.   None of the above

9   Guarded Pushbuttons are used in application/s such as _____.
   i.   START   ii.   CYCLE
   iii. JOG   iv.   All of the above

10   _____ : the state in which the machine is ON but not RUNNING.
   i.   CYCLE   ii.   RUN
   iii. JOG   iv.   None of the above

Que 2 Short Questions (Attempt any TEN) [20]

1   Describe I/O Update.
2   What do you mean by Limit Switch?
3   Explain Two - Handed RUN Actuation.
4   Explain Disagreement Circuit.
5   Differentiate between Momentary Pushbutton and Maintained Pushbutton.
6   What do you mean by Output Image Register?
7   What is JOG (condition in PLC)?
8   What is Selector Switch?
9   What do you mean by Program Components?
10 Draw the ladder logic rung for a normally open IN_1 AND'ed with a normally closed IN_2 driving a coil CR_1.
11 Define Scan Cycle.
12 Explain AND OR Logic.

Que 3 [A] With necessary Timing Diagram and Schematic Symbols, explain Delay - On Timer (TON) Relay. [0]

[B] Write a note on Pushbutton Switch Actuators. [05]

OR

[C] With necessary Timing Diagram and Schematic Symbols, explain Delay - Off Timer (TOF) Relay. [05]

[D] Give an account of Contactor. [05]

Que 4 [A] Discuss Ground Test with necessary Circuit. [05]

[B] Give an account of Sealing Contacts. [05]

OR

[C] Write a note on Reference Designators. [05]

[D] Write a note on Anti - Tie Down and Anti - Repeat. [05]

Que 5 [A] Write a note on Solve the Ladder. [10]

OR

[B] Describe the PLC Configurations in length. [ ]

Que 6 [A] Discuss Always - ON and Always - OFF Contacts. [05]

[B] Write a note on Oscillator (with respect to PLC). [05]

OR

[C] Give an account of Internal Relay. [05]

[D] Explain Majority Circuit. [05]

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