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Name of Examination : **Winter 2020** - (Preview)

Course Code & Course Name : **IN301 - Industrial Automation and Management**

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Maximum Marks : **60**

Duration : **3 Hrs**

[Edit](#) [Print](#) [View Answer Key](#) [Close](#) **Answer Key Submission Type:** Marking scheme with model answers and solutions of numerical

Instructions:

1. All questions are compulsory.
2. Illustrate your answer with suitable figures/sketches wherever necessary.
3. Assume suitable additional data; if required.
4. Use of logarithmic table, drawing instruments and non programmable calculators is allowed.
5. Figures to the right indicate full marks.

1) Answer the following questions

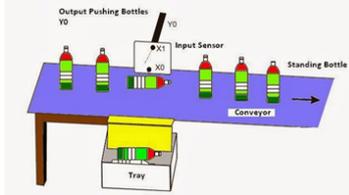
- a) Draw the circuit for the sinking device with sourcing input module in PLC circuit .Explain the same . [4]
- b) In Ladder programming, when placing input conditions in parallel, place most likely to be true on the top .Restate whether this is True or False statement with justification. [4]
- c) Explain the difference between PLC & DCS. [4]

2) Answer any two of the following questions

- a) State the execution process of PLC using the PLC operating cycle with neat diagram [6]
- b) Design the Ladder diagram stating [6]

1 Number of Input Required 2 Number of output required

for PLC Ladder programming description for Detecting the standing bottles on the conveyor and pushing falling bottles in tray



- c) A railway station has 3 platforms A, B & C. One train is coming into the station. It has to be given entry to platform A if A is empty, otherwise to platform B. If both A & B are occupied then it has to be given entry to platform C. If all platforms are full then the train has to wait. Design the necessary logic diagram [6]

3) Answer any two of the following questions

- a) Explain the main components of distributed control system and the functions, limitation with the help of neat diagram. [6]
- b) Which are the leading DCS providers? What is Set Point control stations in DCS? [6]
- c) What is SCADA ? Draw the architecture of SCADA systems .Explain Role of MMI/HMI SCADA in Industrial Automation. [6]

4) Answer the following questions

- a) What do you understand by Field bus technology? Explain short circuit protection circuit used in device coupler. [4]
- b) Explain the MAP/TOP protocol tree. [4]
- c) What is the specialty of HART protocol ? How to Setup a Smart Transmitter Using a HART Communicator? [4]

5) Answer any two of the following questions

- a) Define the Principles and functions of Industrial Management . [6]
- b) Write a note on Distinction between management and administration . [6]
- c) Explain the role of Industrial Engineer with regards to the shop floor Explain the difference between production management and Industrial management. [6]

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