

Printed Pages—3

E0E076

(Following Paper ID and Roll No. to be filled in your Answer Book)											
<b>PAPER ID : 2995</b>	<b>Roll No.</b> <table border="1"><tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table>										

**B.Tech.**

(SEM. VII) ODD SEMESTER THEORY

EXAMINATION 2012-13

**INDUSTRIAL AUTOMATION-I***Time : 3 Hours**Total Marks : 100***Note :-** Attempt **all** questions.

1. Attempt any **four** of the following : **(5×4=20)**
  - (a) Differentiate between Mechanization & Automation.
  - (b) What are the strategies for automation ?
  - (c) Discuss why automation is required in industry. Give suitable example.
  - (d) Explain, in brief, types of automation that can be used in a production system.
  - (e) Identify major socio-economic considerations favouring automation.
  
2. Attempt any **four** of the following : **(5×4=20)**
  - (a) Compare hard automation with soft automation.
  - (b) What are the advantages of flexible automation ?
  - (c) Distinguish between discrete control and continuous control of industrial process.

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- (d) Discuss architecture of Programmable Automation Controller with the help of schematic diagram.
  - (e) Draw the electrical circuit along with Ladder Logic representing following logic gates;
    - (i) AND
    - (ii) OR
    - (iii) NOT
    - (iv) NAND
3. Attempt any **two** of the following : **(10×2=20)**
- (a) Compare Programmable Automation Controller with Programmable Logic Controller. What are the key advantages of Programmable Automation Controller ?
  - (b) Discuss about memory management and communication system of Programmable Automation Controller.
  - (c) Explain the process of scanning the ladder diagram in a PLC from input scan till output scan.
4. Attempt any **two** of the following : **(10×2=20)**
- (a) Write short notes on the following :
    - (i) Sequential function chart.
    - (ii) Functional block diagram.
  - (b) With the help of suitable example of ladder logic, explain the concept of latching.

- (c) Draw the ladder logic for the following conditions :
- (i) A conveyor belt transporting bottled products to packaging where a deflector plate is activated to deflect bottles into a reject bin if either the weight is not within certain tolerances or there is no cap on the bottle.
  - (ii) A light that comes on when it becomes dark, i.e., when there is no light input to the light sensor there is an output.

5. Attempt any **two** of the following : (10×2=20)

- (a) Discuss the importance of SCADA in current scenario of industrial modernization. What are the sub-systems of SCADA ?
- (b) What are the advantages and applications of HMI ?
- (c) What is the significance of data acquisition and why it is important to secure global database ?