

Printed Pages : 3



EOE085

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 199855

Roll No.

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B. Tech.

(SEM. VIII) THEORY EXAMINATION, 2014-15
INDUSTRIAL AUTOMATION - II

Time : 3 Hours]

[Total Marks : 100

Note: Attempt all questions

1) Attempt any **four** of the following: (5 x 4=20)

- a) Explain industrial network components with their applications in networking.
- b) Discuss the use of various network topologies with suitable diagrams.
- c) Describe importance of industrial networking with its merits and demerits.
- d) With the help of suitable examples, explain the use of network communication in Industrial Automation.
- e) Give classifications of industrial network based on their functionality and explain different ways in which it can be connected.

f) What are the features of standard Ethernet? Explain Ethernet standards for industrial networking.

2) Attempt any **four** of the following: (5 x 4=20)

- a) What are the disadvantages of dc drives due to which three phase induction motor drive is replacing it?
- b) Enlist the classification of electric drives and explain them.
- c) Draw a block diagram of electric drive and indicate the role of each component.
- d) What is servomechanism? Describe principle of operation of servo motors.
- e) Write a short notes on any two of the following;
 - i. Scalar control
 - ii. Vector control or flux vector control
 - iii. PWM Controller
- f) Describe variable frequency drives with its components and block diagram.

3) Attempt any **two** of the following: (10 x 2=20)

- a) Explain the following:
 - a. Serial Real Time Communication Network
 - b. Ethernet/IP
- b) Describe the need of synchronization techniques used in automation system. Give brief description of Precision Time Protocol (PTP) over Network Time Protocol (NTP).

- c) Write short notes on the following:
- i. Real time data Acquisition
 - ii. Real time web based reporting

4) Attempt any **two** of the following: (10 x 2=20)

- a) How does a Vibration-based condition monitoring system help in predictive maintenance of industrial automation?
- b) What is overall Equipment Effectiveness? How this increases the productivity and total efficiency of an automatic system? Describe the key benefits and features of OEE with reference to industrial automation.
- c) What is Programmable Automation Controller? Differentiate PAC with PLC based on features and application.

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

- a) Discuss how EMI Software has changed manufacturing operations. Explain Enterprise Manufacturing Intelligence (EMI) with their core functions.
- b) Define Asset Management System with brief description of their components. What is the scope of a risk-based management plan?
- c) What is disaster recovery? Explain various types of DR and give importance of disaster recovery planning in industrial automation.