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Max. Marks: 100

**B.TECH.** 

## THEORY EXAMINATION (SEM–VIII) 2016-17

INDUSTRIAL AUTOMATION-II

# Time : 3 Hours

Note : Be precise in your answer.

## SECTION – A

## **1.** Explain the following:

- **a**) What is the scalar control?
- **b**) What is the information level?
- c) Explain the control level.
- **d**) What are the Ethernet / IP?
- e) Write down the requirement of industrial networking.
- **f**) What is the real time data Acquisition?
- g) Write the classification of electric drives.
- **h**) What is the disaster recovery?
- i) What do you mean by Automation?
- **j**) How automation helps to increase the productivity?

## SECTION – B

#### 2. Attempt any five of the following questions:

- a) What is asset management system? Describe its components and need in industrial automation.
- b) Differentiate between MCode/TCP, EtherNet/IP and MODBUS/TCP.
- c) Discuss serial real-time communication system and its various versions. Also explain the topologies used for the same.
- d) What is the function of AC drives, Discuss why AC drives are preferred over DC drives?
- e) Discuss how Device-Net and Field-bus can be used for low and mid-level factory networking?
- f) What are the basic requirements of industrial networking? Briefly describe its components
- g) Write short notes on:
  - (i) Enterprise manufacturing intelligence
  - (ii) Need and uniqueness of historian software.
- **h**) Define the selection criteria of VFDs based on their characteristics.

#### SECTION – C

#### Attempt any two of the following questions:

- **3.** Explain how can we use Controller Area Network (CAN) for the standardization of communication? Write its advantages and disadvantages.
- **4.** Why time synchronization is needed in Automation? Describe functional principle of Precision Time Protocol (PTP) with their applications.
- 5. What is Servomechanism? How can we use a servo motor for closed loop control?

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 $10 \ge 2 = 20$ 

 $5 \ge 10 = 50$ 

 $2 \ge 15 = 30$