B.TECH.
THEORY EXAMINATION (SEM–VIII) 2016-17
INDUSTRIAL AUTOMATION-II

Time : 3 Hours   *Max. Marks : 100*

Note : *Be precise in your answer.*

SECTION – A

1.   **Explain the following:**   **10 x 2 = 20**
   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:**   **5 x 10 = 50**
   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: **2 x 15 = 30**
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?