

(3 Hours)

[Total Marks: 80]

N.B.: (1) Question No. 1 is Compulsory.

(2) Attempt any three questions out of the remaining five.

(3) Each question carries 20 marks and sub-question carry equal marks.

(4) Assume suitable data if required.

1. (a) What is IPv6? Discuss the features of IPv6. (5)
- (b) Explain the importance of various actuators used in Industrial IoT. (5)
- (c) Why are Industrial Control Systems important? Explain with an example. (5)
- (d) Explain the significance of the 4-20 mA systems used in IoT. (5)
2. (a) Explain the IEEE 802.15.4 and ZigBee communication protocols. (10)
- (b) Explain the architecture of Industrial IoT. Discuss various advantages and disadvantages of Industrial IoT. (10)
3. (a) Classify the different types of sensors used in IoT. Describe the principle of any two sensors. Also, highlight the requirement in IIoT sensors. (10)
- (b) Draw and detail the various 802.15.4 MAC Frame Formats. (10)
4. (a) Describe a Case study on IIoT Cloud integration using any cloud service of your choice (10)
- (b) Explain Cloud / Server architectural requirements for IIoT Applications with examples. (10)
- 5 (a) Write a detailed note on IoT Security tomography and the layered attacker model. (10)
- (b) Draw SCADA architecture and write differences between DCS and SCADA. (10)
6. Write short notes on : (Any two) (20)
  - a. Protocol Converters
  - b. Bluetooth
  - c. Ethernet
  - d. MODBUS in IIoT Applications