

Internet of Things (IoT) - Unit-wise Question Compilation

Unit 1

1. a) Explain Request Response model, Publish Subscribe model and Push/Pull Model? [9]
b) Justify how Retail Sector impacting on end to end user by integrating IOT technology. [9]
2. a) Explain in brief Telematics and Telemetry model? [10]
b) How is security a big concern in IOT? What kind of development is there in market to make IoT more secure? [8]
3. a) Explain with the help of a neat diagram the components of IOT with pros and cons? [9]
b) With the help of following sector justify how IOT technology impacting on end to enduser. [9]
 - i) Big Data Analytics
 - ii) Telematics
 - iii) Home Automation
4. a) Explain in brief SCADA with block diagram and SCADA functionality with middleware structure? [9]
b) How IOT plays an important role in smart city, smart appliances, smart parking, smart lightning? [9]
5. a) Explain Next Generation Kiosks & smart vending machines in detail? [9]
b) Justify how the asset management impacts on end to end users by integrating IOT technology? [9]
6. a) Explain in brief Smoke for gas detection and Air quality monitoring? [10]
b) How is security a big concern in IOT? How do IDS work in IoT? [8]
7. a) Illustrate the various IoT communication APIs? [8]
b) With the help of following sectors explain how IoT technology is impacting on the end-to-end value chain in the logistics sector: [10]
 - i) Route generation & scheduling
 - ii) Fleet tracking
 - iii) Shipment monitoring
 - iv) Remote vehicle diagnostics
8. a) Demonstrate the IoT component with a neat diagram. [9]
b) What is Piggybacking? What is the necessity of security and privacy of IoT? [9]

Unit 2

1. a) Explain SNMP and NETCONF in detail. [8]
b) Explain the IOT system working block with the help of Control units, Communication Modules and Sensors? [9]
2. a) Draw IOT protocol structure and explain IPv4, 6LoWPAN in detail? [9]

- b) How information is exchanged in real time without human intervention? [8]
- 3. a) Explain Block diagram of RFID system with frequency ranges? Explain any two strengths and weaknesses of RFID over Barcode? [9]
 - b) Explain with the help of a neat diagram cellular Machine to Machine application network? [8]
- 4. a) Differentiate MQTT and CoAP Protocol? [9]
 - b) Explain advanced message queuing protocol with architectural diagram? [8]
- 5. a) Differentiate M2M and IoT? Also differentiate COAP and MQTT? [8]
 - b) Explain the IOT System working block with the help of Control units, Communication Modules and Sensors? [9]
- 6. a) Explain Link layer protocol like ethernet, Wi-Fi, WiMax, Zigbee in Protocol architecture? [9]
 - b) How information is exchanged in real time without human intervention? [8]
- 7. a) Draw and Explain WSN architecture? [9]
 - b) Explain any four IoT network protocols? [8]
- 8. a) Explain Machine to Machine Architecture? [9]
 - b) Explain any four applications of RFID? [8]

Unit 3

- 1. a) Explain how you will design an energy management system in a commercial building using IoT. [10]
 - b) Elaborate on how you will use IoT for remote healthcare. [8]
- 2. a) What is the Web of things (WOT)? Draw and explain the cloud of things architecture. [10]
 - b) What is Industrial IoT? How is it different from Conventional IoT? [8]
- 3. a) Why is security required in IOT? Explain in detail various security models in the Internet of Things. [10]
 - b) What is threat analysis in the Internet of Things? Explain details of threat analysis. [8]
- 4. a) What is Internet of Things security tomography? Explain in detail layered attacker model? [10]
 - b) Explain Analog and digital sensors with 2 examples each? [8]
- 5. a) Describe Cloud of Things. Explain how cloud is an integration of Grid Computing and SOA. [10]
 - b) Explain on Devices Security and Privacy of IoT cloud. Why do we need IoT Security? [8]
- 6. a) Describe the need of semantic web technology and business impacting IoT? [10]
 - b) Explain in detail vulnerabilities of Internet of Things. [8]
- 7. a) Explain IoT Information model specification. [9]
 - b) Explain Various IoT sim card Technologies [9]
- 8. a) What are the criterias for selection of controllers in Embedded Products? [9]
 - b) What are different security parameters considered while designing any IoT system? [9]

Unit 4

1. a) Explain Smart home and Smart city applications in view of IoT. [10]
b) How will IoT be used to protect environmental loss? [7]
2. a) Explain use of IoT in the agriculture field. Explain it with a case study. [10]
b) Write a note on Industrial IoT. [7]
3. a) Write a detailed business model scenario for the Internet of Things. [7]
b) Explain in detail application of Internet of Things in city automation and home automation. [10]
4. a) Write applications of Internet of Things for e-health body area network. [7]
b) Explain in detail business model and business innovation in the Internet of Things. [10]
5. a) Discuss Cloud computing. Explain the setup of a cloud environment in an IoT? [10]
b) What are IoT design ethics, explain? [7]
6. a) How does Vehicle-to-Vehicle (V2V) communication enhance safety and efficiency in the internet of Things (IoT) ecosystem? [10]
b) Elaborate on how you will use IoT for remote healthcare. [7]
7. a) Discuss various IoT applications in the Agriculture domain. [6]
b) What is the E-Healthcare system? How IoT is important in E-Health Monitoring application. [6]
c) Discuss various IoT applications in Automotive applications. [5]
8. a) Write a short note on IoT vertical Applications. [6]
b) Explain Voice Application for IoT Device. [6]
c) Explain Vehicle to Vehicle communication. [5]