

Internet of Things – Sem 5

UNIT 1: Introduction to IoT

1. What is IoT? Explain the characteristics and features of IoT.
2. Describe the applications of IoT in various sectors (healthcare, agriculture, smart cities, etc.).
3. What are the challenges in implementing IoT systems?
4. Explain the architecture of IoT (5-layer or 3-layer architecture).
5. Compare IoT with traditional internet technologies.
6. What is an IoT ecosystem?

UNIT 2: IoT Hardware and Devices

1. What are the key components of an IoT system?
2. Explain the role of **sensors** and **actuators** in IoT.
3. What are microcontrollers? Compare **Arduino** and **Raspberry Pi**.
4. Explain the role of embedded systems in IoT.
5. Write short notes on:
 - * RFID
 - * Bluetooth
 - * ZigBee
6. What are IoT gateways and why are they important?

UNIT 3: Communication Protocols

1. Explain the types of communication models in IoT (device-to-device, device-to-cloud, etc.).
2. What are the common IoT communication protocols?
 - * MQTT
 - * CoAP
 - * HTTP
 - * AMQP
3. Compare MQTT and HTTP protocols.
4. What is the role of IP addressing in IoT (IPv4 vs IPv6)?

5. Explain how data is transmitted securely in IoT networks.
6. What is the role of cloud computing in IoT?

UNIT 4: IoT Platforms and Services

1. What are IoT platforms? Give examples: **ThingSpeak**, **Google Cloud IoT**, **AWS IoT**, etc.
2. Explain the working of **ThingSpeak** and how to send sensor data to it.
3. How can IoT devices be integrated with cloud services?
4. What is edge computing? How is it different from cloud computing in IoT?
5. Explain device management and remote monitoring using IoT platforms.
6. What are the security concerns in cloud-based IoT applications?

UNIT 5: IoT Applications and Case Studies

1. Discuss an IoT-based smart agriculture system.
2. Explain an IoT project for smart home automation.
3. How is IoT used in healthcare monitoring systems?
4. Discuss any one real-world case study of IoT implementation.
5. Describe the role of data analytics in IoT.
6. What are the future trends in IoT?

Frequently Asked 10 Marks Questions

- * Explain the architecture of an IoT system in detail.
- * Compare various communication protocols used in IoT.
- * Describe the components and working of a smart home IoT system.
- * Discuss the advantages and limitations of cloud computing in IoT.
- * Explain the use of Raspberry Pi in an IoT application.