



# MUTHAYAMMAL ENGINEERING COLLEGE

(An Autonomous Institution)

(Approved by AICTE, New Delhi, Accredited by NAAC & Affiliated to Anna University)  
Rasipuram - 637 408, Namakkal Dist., Tamil Nadu.

## Department of Electronics and Communication Engineering Question Bank - Academic Year (2021-22)

**Course Code & Course Name : 19ECE25 & Internet of Things**

**Year / Sem / Sec : II / VI /**

### UNIT-I: OVERVIEW OF IOT

#### Part-A (2 Marks)

1. Define IoT.
2. List out the Features of IoT.
3. State the characteristics of IoT.
4. Differentiate between Logical and physical design of IoT.
5. Recall the advantages & disadvantages of IoT.
6. Mention most important design principles for IoT.
7. Define Actuators.
8. Give the basic operations in IoT.
9. Mention the applications of IoT.
10. What is an IoT device?

#### Part-B (16 Marks)

1. (i) Demonstrate the IOT Components with neat diagram. (8)  
(ii) Discuss the applications of IoT. (8)
2. Define IoT. Identify and explain in detail about IoT and the key factors to consider when designing IoT infrastructure. (16)
3. Discuss in detail the design principle of connected devices in IoT. (16)
4. Explain prototyping for embedded devices in IoT. (16)
5. (i) Describe the prototyping for physical design in IoT. (8)  
(ii) Explain the conceptual framework of IoT. (8)

### UNIT-II: IOT ARCHITECTURE

#### Part-A (2 Marks)

1. List out various protocol used in Application layer.

2. Recall the Need For sensors in IoT.
3. What is the purpose of sensors and actuators in IoT?
4. Identify the purpose of Data Pre-processing.
5. State the function of gateway.
6. Summarize Connectivity
7. Classify the perception layer in IoT.
8. What is the purpose of business layer?
9. Analyse various types of communication technologies.
10. What do you mean by beacons?

### **Part-B (16 Marks)**

1. (i) Discuss in detail about Bluetooth Low energy and its role in IoT. (8)  
(ii) Describe the IoT node structure with neat sketch. (8)
2. Explain in details IoT Architecture layers. (16)
3. Describe IoT reference architecture and information. (16)
4. (i) Discuss IoT standards (8)  
(ii) Write note on Bluetooth. (8)
5. (i) Discuss cloud computing for IoT. (8)  
(ii) Summarize the IoT networking topologies. (8)

## **UNIT-III: WIRELESS TECHNOLOGY FOR IOT**

### **Part-A (2 Marks)**

1. Where Zigbee is used and point the Zigbee addressing mode?
2. Bring out the difference between Bluetooth and Zigbee.
3. Mention the applications of Zigbee.
4. List out different versions of Bluetooth.
5. Mention the pros and cons of WiFi.
6. Recall the four most popular current WiFi 802.11 standards.
7. Summarize Bluetooth Smart.
8. What is Zigbee Smart?

9. What is UBW? Give its IEEE standard. Mention its use in IoT.
10. What is 6LoWPAN?

**Part-B (16 Marks)**

1. (i) Explain UBW IEEE 802.15.4 in detail. (8)  
(ii) Explain in detail about the architecture of Zigbee. (8)
2. Explain any three-wireless technology for IoT (16)
3. Explain Bluetooth smart and Zigbee smart in detail and their role in IoT. (16)
4. (i) Describe WiFi in detail. Also explain its role in IoT. (8)  
(ii) Explain Zigbee network operation. (8)
5. Explain 6LoWPAN in detail. List its advantages and disadvantages. (16)

**UNIT-IV: BUILDING IOT WITH RASPBERRY PI**

**Part-A (2 Marks)**

1. Define Raspberry Pi.
2. What are the different components of Raspberry Pi?
3. How is Raspberry Pi used in IoT?
4. What is API -Application Program Interface?
5. Define web services.
6. What are the key technologies in web services
7. Name any four services offered by Raspberry Pi
8. Differentiate Raspberry with Arduino.
9. Analyze the features of Raspberry Pi.
10. Outline the applications of Raspberry Pi.

**Part-B (16 Marks)**

1. Describe in detail on Raspberry Pi with neat sketch. (16)
2. Explain building IoT using Raspberry Pi. (16)
3. Illustrate the Raspberry Pi interfaces. (16)
4. What are the different models of Raspberry Pi available? (16)

- Compare and contrast the Raspberry Pi models
5. (i) Write note on APIs. (8)
- (ii) Summarize Web services. (8)

**UNIT-V: SERVICE LAYER PROTOCOLS AND SECURITY**  
**Part-A (2 Marks)**

1. What is the difference between M2M and IoT?
2. Mention the communication protocols used for M2M local area networks.
3. Draw the structure of M2M Gate way Network
4. Analyze IoT Security Threats and Attacks
5. Point out main security requirements in IoT scenarios
6. Summarize the IoT protocols-IEEE 802.15.4
7. Summarize the salient features of M2M protocol.
8. What is RPL in 6LoWPAN?
9. What is OMA in IoT?
10. How RPL is useful in IoT implementation?

**Part-B (16 Marks)**

1. Explain the security architecture of IoT (16)
2. (i) What is IoT security? Describe the challenges of that in detail. (8)
- (ii) Write note on RPL. (8)
3. Discuss vulnerabilities of IoT. What are the IoT Security Requirements? Discuss in detail. (16)
4. With the help of neat diagrams, explain the M2M system architecture. (16)
5. Explain Application layer protocols for IoT. (16)

**Course Faculty**

**HOD**