19EC621 – IOT AND WIRELESS SENSOR NETWORKS

QUESTION BANK

UNIT 2   ARCHITECTURE AND DESIGN PRINCIPLES FOR IOT

2 MARKS:

1. What is the role of internet connectivity in IoT?
    Ans: Internet connectivity enables IoT devices to communicate, share data, and access cloud services for processing and analytics.

2. What are the two main types of internet-based communication in IoT?
    Ans: Wired (Ethernet, Fiber Optics) and Wireless (Wi-Fi, Cellular, LoRa, Zigbee).

3. What is the difference between IPv4 and IPv6 in IoT?
    Ans: IPv4 uses a 32-bit address (limited addresses), while IPv6 uses a 128-bit address (larger address space, better suited for IoT).

4. What is the purpose of the 6LoWPAN protocol in IoT?
    Ans: 6LoWPAN (IPv6 over Low-power Wireless Personal Area Networks) enables IPv6 communication over low-power wireless networks like IEEE 802.15.4.

5. Why is IPv6 preferred over IPv4 for IoT devices?
    Ans: IPv6 provides a larger address space, efficient routing, security features, and better support for device mobility.

6. What is IP addressing in IoT?
    Ans: It is the assignment of unique IP addresses to IoT devices, enabling them to communicate over the internet.

7. What are the two types of IP addressing used in IoT?
    Ans: Static IP (fixed address) and Dynamic IP (assigned dynamically using DHCP).

8. What is the role of application layer protocols in IoT?
    Ans: They define how IoT devices communicate over the internet, ensuring structured data exchange.

9. What is HTTP, and why is it used in IoT?
    Ans: HTTP (Hypertext Transfer Protocol) is a web communication protocol used for data transfer between IoT devices and cloud servers.

10. What is the difference between HTTP and HTTPS?
    Ans: HTTPS (Hypertext Transfer Protocol Secure) encrypts data using SSL/TLS, making it more secure than HTTP.

11. What is the purpose of FTP in IoT?
    Ans: FTP (File Transfer Protocol) is used to transfer large files between IoT devices and cloud servers.

12. What is the function of TELNET in IoT?
    Ans: TELNET is a network protocol used for remote command-line access and management of IoT devices.

BIG QUESTIONS:

1. Explain the role of internet connectivity in IoT. What are the different types of wired and wireless communication technologies used?
2. Discuss different types of internet-based communication used in IoT. How do TCP/IP protocols enable IoT device communication?
3. Compare IPv4 and IPv6 in terms of address structure, features, and suitability for IoT applications. Why is IPv6 preferred for IoT?
4. Explain the 6LoWPAN protocol in detail. How does it enable IPv6 communication for low-power IoT devices?
5. What is IP addressing in IoT? Discuss the need for unique IP addresses and compare static and dynamic IP addressing methods.
6. Explain how IP addressing is implemented in IoT networks. What are the challenges of managing IP addresses for large-scale IoT deployments?
7. What is HTTP, and how is it used in IoT applications? Discuss its advantages and limitations for IoT devices.
8. Explain the working of HTTPS and compare it with HTTP. Why is HTTPS important for secure IoT communication?
9. Describe the purpose of TELNET in IoT. Why is it being replaced by more secure alternatives like SSH?