Selvam College of Technology

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An ISO 9001:2015 Certified Institution, Approved by AICTE - New Delhi, Affiliated to Anna University - Chennai

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Name of the Bundle	Proficient and Advanced Bundle V2	Subject	Networking V2
Topic	TCP/IP Model	Last updated on	11 January 2024

1. **What does TCP stand for in TCP/IP?**

    a. Transmission Control Protocol

    b. Transfer Control Protocol

    c. Technical Control Protocol

    d. Telecommunication Control Protocol

    Ans: a. Transmission Control Protocol

    Explanation: TCP stands for Transmission Control Protocol, which provides reliable, connection-oriented communication.

2. **What is the primary purpose of the Simple Mail Transfer Protocol (SMTP) in TCP/IP?**

    a. File Transfer

    b. Email Transmission

    c. Web Browsing

    d. Remote Login

    Ans:b. Email Transmission

    Explanation: SMTP is used for sending and receiving email messages between servers.

3. What is the function of the Internet Control Message Protocol (ICMP) in TCP/IP?

a. Routing

b. Error Reporting

c. File Sharing

d. Data Encryption

Ans: b. Error Reporting

Explanation: ICMP is used for reporting errors and providing feedback about network conditions.

4. What is the primary purpose of the three-way handshake in TCP?

a. Establishing a connection

b. Data transmission

c. Error detection

d. Connection termination

Ans: a. Establishing a connection

Explanation: The three-way handshake is used to establish a reliable connection between a client and a server in TCP.

5. What does the TCP/IP model stand for?

   a. Transmission Control Protocol/Internet Protocol

   b. Technical Control Protocol/Interconnected Protocol

   c. Telecommunication Control Protocol/Internet Procedure

   d. Transfer Control Protocol/Intranet Protocol

   Ans: a. Transmission Control Protocol/Internet Protocol

   Explanation: The TCP/IP model stands for Transmission Control Protocol/Internet Protocol, which are key protocols for communication in computer networks.

6. What is the primary function of the DNS (Domain Name System) in the TCP/IP model?

   a. Logical addressing

   b. Physical addressing

   c. Name resolution to IP addresses

   d. Error detection

   Ans: c. Name resolution to IP addresses

   Explanation: DNS translates human-readable domain names into IP addresses, allowing devices to locate each other on the internet.

7. At which layer does the UDP (User Datagram Protocol) operate in the TCP/IP model?

a. Application Layer

b. Transport Layer

c. Network Layer

d. Link Layer

Ans: b. Transport Layer

Explanation: UDP operates at the Transport Layer of the TCP/IP model, providing a connectionless and low-overhead communication option.

8. In the TCP/IP model, which layer corresponds to the OSI model's Session Layer and Presentation Layer?

a. Application Layer

b. Transport Layer

c. Network Layer

d. Link Layer

Ans: a. Application Layer

Explanation: The Application Layer in the TCP/IP model encompasses functions of both the OSI model's Session Layer and Presentation Layer.

9. What is the purpose of the ICMP Echo Request and Echo Reply messages in the TCP/IP model?

a. Error detection and reporting

b. Address resolution

c. Name resolution

d. Packet fragmentationARP

Ans: a. Error detection and reporting

Explanation: ICMP Echo Request and Echo Reply messages are commonly known as "ping" and are used for testing the reachability of a host on an Internet Protocol (IP) network.

10. Which protocol operates at the Link Layer and is used for discovering and maintaining network device relationships in the TCP/IP model?

a. IP (Internet Protocol)

b. ICMP (Internet Control Message Protocol)

c. ARP (Address Resolution Protocol)

d. OSPF (Open Shortest Path First)

Ans: c. ARP (Address Resolution Protocol)

Explanation: ARP is used for discovering the hardware address associated with a given IP address on a local network.

11. At which layer does the IP (Internet Protocol) operate in the TCP/IP model?

    a. Application Layer

    b. Transport Layer

    c. Network Layer

    d. Link Layer

    Ans: c. Network Layer

    Explanation: IP operates at the Network Layer of the TCP/IP model, providing logical addressing and routing.

12. Which protocol is used for securely accessing remote servers over a network, providing a command-line interface?

    a. SSH (Secure Shell)

    b. SNMP (Simple Network Management Protocol)

    c. HTTPS (Hypertext Transfer Protocol Secure)

    d. SMTP (Simple Mail Transfer Protocol)

    Ans: a. SSH (Secure Shell)

    Explanation: SSH is used for secure remote access to devices over a network, typically providing a command-line interface.

13. What is the primary function of the Transport Layer in the TCP/IP model?

   a. Logical addressing

   b. End-to-end communication and data segmentation

   c. Physical addressing

   d. Error detection and correction

   Ans: b. End-to-end communication and data segmentation

   Explanation: The Transport Layer is responsible for end-to-end communication, error recovery, and data segmentation.

14. In the TCP/IP model, which layer corresponds to the OSI model's Transport Layer and Network Layer combined?

   a. Transport Layer

   b. Network Layer

   c. Internet Layer

   d. Data Link Layer

   Ans: c. Internet Layer

   Explanation: The Internet Layer in the TCP/IP model combines functionalities of the OSI model's Transport Layer and Network Layer.

15. What is the primary purpose of the TCP/IP model?

   a. To provide a framework for hardware design

   b. To define the structure of the internet

   c. To standardize computer programming languages

   d. To facilitate communication in computer networks

   Ans: d. To facilitate communication in computer networks

   Explanation: The TCP/IP model is designed to provide a conceptual framework for the communication between devices on a network.

16. The TCP/IP model consists of how many layers?

   a. 3

   b. 4

   c. 5

   d. 7

   Ans: b. 4

   Explanation: The TCP/IP model consists of four layers: Application, Transport, Network, and Link.

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17. Which layer of the TCP/IP model is responsible for providing network services directly to end-users?

   a. Network Layer

   b. Application Layer

   c. Link Layer

   d. Transport Layer

   Ans: b. Application Layer

   Explanation: The Application Layer provides network services directly to end-users, including protocols like HTTP, SMTP, and FTP.

18. Which of the following protocols uses both TCP and UDP?

   a. FTP

   b. SMTP

   c. Telnet

   d. DNS

   Ans: d. DNS

   Explanation: DNS uses TCP for zone exchanges between servers and UDP when a client is trying to resolve a hostname to an IP address.

19. The term IANA stands for?

a. Internet Assigned Numbers Authority

b. Internal Assigned Numbers Authority

c. Internet Associative Numbers Authoritative

d. Internal Associative Numbers Authority

Ans: a. Internet Assigned Numbers Authority

Explanation: The term IANA stands for Internet Assigned Numbers Authority.

20. Which layer of the TCP / IP stack corresponds to the OSI model transport layer?

a. Host to host

b. Application

c. Internet

d. Network Access

Ans: a. Host to Host

Explanation: The host to host layer conforms to the transport layer of the OSI model. This layer is responsible for the final correspondence and error-free distribution of data.

21. In the OSI model, which layer is primarily associated with hubs and repeaters?

   a. Physical Layer

   b. Data Link Layer

   c. Network Layer

   d. Transport Layer

   Ans: a. Physical Layer

   Explanation: Hubs and repeaters operate at the Physical Layer, dealing with the physical transmission of data.

22. In the TCP/IP model, which device operates at the Link Layer and is responsible for connecting devices within the same local network?

   a. Router

   b. Switch

   c. Hub

   d. Repeater

   Ans: b. Switch

   Explanation: Switches operate at the Link Layer and forward data based on MAC addresses within the same network.

23. Which device operates at the Network Layer in the OSI model and is responsible for making routing decisions?

   a. Router

   b. Switch

   c. Hub

   d. Repeater

   Ans: a. Router

   Explanation: Routers operate at the Network Layer and are responsible for making routing decisions between different networks.

24. What device operates at the Transport Layer in both the OSI model and the TCP/IP model?

   a. Router

   b. Switch

   c. Hub

   d. Gateway

   Ans: d. Gateway

   Explanation: Gateways operate at higher layers, often performing functions associated with the Transport Layer.

25. In the TCP/IP model, where does the Network Access Layer reside?

a. Layer 2

b. Layer 4

c. Layer 1

d. Layer 3

Ans: c. Layer 1

Explanation: The Network Access Layer is Layer 1 in the TCP/IP model.

26. In the TCP/IP model, where does the Network Layer or Internet Layer reside?

a. Layer 2

b. Layer 4

c. Layer 1

d. Layer 3

Ans: a. Layer 2

Explanation: The Network Layer or Internet Layer is Layer 2 in the TCP/IP model.

27. In the TCP/IP model, where does the Transport Layer or Host-to-Host Layer reside?

    a. Layer 2

    b. Layer 4

    c. Layer 1

    d. Layer 3

    Ans: d. Layer 3

    Explanation: The Transport Layer or Host-to-Host Layer is Layer 3 in the TCP/IP model.

28. In the TCP/IP model, where does the Application Layer reside?

    a. Layer 2

    b. Layer 4

    c. Layer 1

    d. Layer 3

    Ans: b. Layer 4

    Explanation: The Application Layer is Layer 4 in the TCP/IP model.