1. What are the goals of a computer network?

a) To increase hardware costs
b) To decrease communication costs
c) To reduce data security
d) To limit accessibility to information

Answer: b) To decrease communication costs

Explanation: The primary goal of a computer network is to facilitate communication and resource sharing while reducing communication costs.

2. Which of the following is NOT a component of a computer network?

a) Switches
b) Routers
c) Servers
d) Monitors

Answer: d) Monitors

Explanation: Monitors are output devices and are not components of computer networks. Switches, routers, and servers are essential components.

3. The OSI model consists of how many layers?

a) 4
b) 5

c) 6
d) 7

Answer: d) 7

Explanation: The OSI (Open Systems Interconnection) model consists of seven layers: Physical, Data Link, Network, Transport, Session, Presentation, and Application.

4. Which architecture is characterized by its layered approach?

a) Peer-to-peer architecture
b) Client-server architecture
c) Hierarchical architecture
d) Mesh architecture

Answer: a) Peer-to-peer architecture

Explanation: The OSI model and TCP/IP model are examples of architectures characterized by a layered approach, commonly used in peer-to-peer networks.

5. Which layer of the OSI model is responsible for end-to-end communication?

a) Physical layer
b) Transport layer
c) Data Link layer
d) Application layer

Answer: b) Transport layer

Explanation: The Transport layer is responsible for end-to-end communication and ensures reliable data transmission between hosts.

6. Which protocol is associated with the Network layer of the OSI model?

a) TCP
b) UDP
c) IP
d) HTTP

Answer: c) IP

Explanation: The Internet Protocol (IP) operates at the Network layer of the OSI model and is responsible for routing packets across networks.

7. What is the primary function of the Physical layer?

a) Logical addressing
b) Error detection
c) Media access control
d) Transmission of raw data

Answer: d) Transmission of raw data

Explanation: The Physical layer deals with the transmission of raw data over a physical medium without any regard to the meaning or structure of the data.

8. Which characteristic is NOT associated with the Data Link layer?

a) Framing
b) Error detection and correction
c) Logical addressing
d) Media access control

Answer: c) Logical addressing

Explanation: Logical addressing is a function of the Network layer, not the Data Link layer. The Data Link layer deals with framing, error detection and correction, and media access control.

9. Which service provides a connection-oriented communication?

a) TCP
b) UDP
c) HTTP
d) DNS

Answer: a) TCP

Explanation: Transmission Control Protocol (TCP) provides connection-oriented communication, ensuring reliable data delivery by establishing a connection before data transfer.

10. What type of service does UDP provide?

a) Connection-oriented
b) Connectionless

c) Secure
d) Reliable

Answer: b) Connectionless

Explanation: User Datagram Protocol (UDP) provides connectionless communication, where data packets are sent without establishing a connection, suitable for applications where speed is more critical than reliability.

11. What does the term “bandwidth” refer to in networking?

a) The physical size of the network
b) The maximum data rate of a channel
c) The distance between nodes in a network
d) The number of devices connected to the network

Answer: b) The maximum data rate of a channel

Explanation: Bandwidth refers to the maximum rate of data transfer across a network channel, typically measured in bits per second (bps).

12. Which modulation technique is commonly used in wireless communication?

a) Frequency Modulation (FM)
b) Amplitude Modulation (AM)
c) Phase Modulation (PM)
d) Orthogonal Frequency Division Multiplexing (OFDM)

Answer: d) Orthogonal Frequency Division Multiplexing (OFDM)

Explanation: OFDM is a modulation technique commonly used in wireless communication systems due to its ability to mitigate the effects of multipath interference and improve spectral efficiency.

13. What is the primary function of the Presentation layer?

a) Ensuring end-to-end communication
b) Encoding and encryption of data
c) Establishing, maintaining, and terminating connections
d) Addressing and routing packets

Answer: b) Encoding and encryption of data

Explanation: The Presentation layer is responsible for data representation, encryption, and compression, ensuring that data sent by the Application layer of one system is readable by the Application layer of another system.

14. Which OSI layer is responsible for logical addressing?

a) Physical layer
b) Network layer
c) Data Link layer
d) Transport layer

Answer: b) Network layer

Explanation: The Network layer is responsible for logical addressing, including IP addressing, routing, and forwarding of packets across different networks.

15. Which layer of the OSI model is responsible for establishing, maintaining, and terminating connections?

a) Transport layer
b) Network layer
c) Session layer
d) Presentation layer

Answer: c) Session layer

Explanation: The Session layer is responsible for managing sessions between applications, including establishing, maintaining, and terminating connections as needed.

16. Which TCP/IP layer is analogous to the Transport layer of the OSI model?

a) Network Access layer
b) Internet layer
c) Transport layer
d) Application layer

Answer: c) Transport layer

Explanation: The Transport layer in the TCP/IP model performs functions similar to those of the Transport layer in the OSI model, including providing reliable data delivery and end-to-end communication.

17. Which OSI layer deals with framing and error detection?

a) Transport layer
b) Data Link layer
c) Network layer
d) Physical layer

Answer: b) Data Link layer

Explanation: The Data Link layer is responsible for framing data into frames, error detection and correction, and flow control, ensuring reliable data transmission over the physical medium.

18. Which TCP/IP protocol operates at the Application layer?

a) IP
b) TCP
c) HTTP
d) ICMP

Answer: c) HTTP

Explanation: Hypertext Transfer Protocol (HTTP) operates at the Application layer of the TCP/IP model and is used for communication between web browsers and web servers.

19. What is the primary function of the Network layer?

a) Ensuring end-to-end communication

b) Encoding and encryption of data
c) Routing packets across networks
d) Establishing, maintaining, and terminating connections

Answer: c) Routing packets across networks

Explanation: The Network layer is responsible for routing packets across different networks, including IP addressing, routing, and forwarding.

20. Which OSI layer is responsible for data compression and encryption?

a) Transport layer
b) Presentation layer
c) Session layer
d) Data Link layer

Answer: b) Presentation layer

Explanation: The Presentation layer is responsible for data compression, encryption, and data format conversion, ensuring that data sent by the Application layer is readable by the receiving system.

21.Which layer of the OSI model is responsible for physical addressing?**

a) Network layer
b) Transport layer
c) Data Link layer
d) Session layer

Answer: c) Data Link layer

Explanation: The Data Link layer is responsible for physical addressing, including MAC (Media Access Control) addressing.

22. Which service is provided by the Network layer?

a) Connection-oriented communication
b) Error detection and correction
c) Logical addressing
d) Framing

Answer: c) Logical addressing

Explanation: The Network layer provides logical addressing, including IP addressing, to enable end-to-end communication across different networks.

23. Which OSI layer ensures reliable data transmission between hosts?

a) Physical layer
b) Transport layer
c) Network layer
d) Data Link layer

Answer: b) Transport layer

Explanation: The Transport layer ensures reliable data transmission between hosts by establishing connections, segmenting data, and providing error detection and correction

mechanisms.

24. Which protocol operates at the Transport layer of the OSI model?

a) TCP
b) IP
c) ICMP
d) UDP

Answer: a) TCP

Explanation: Transmission Control Protocol (TCP) operates at the Transport layer of the OSI model and provides reliable, connection-oriented communication.

25. Which OSI layer performs routing and forwarding of packets?

a) Physical layer
b) Data Link layer
c) Network layer
d) Transport layer

Answer: c) Network layer

Explanation: The Network layer performs routing and forwarding of packets across different networks, ensuring that data reaches its destination.

26. Which layer of the OSI model is responsible for session establishment and termination?

a) Data Link layer
b) Transport layer
c) Session layer
d) Presentation layer

Answer: c) Session layer

Explanation: The Session layer is responsible for session establishment, maintenance, and termination, including synchronization and checkpointing of sessions.

27. Which TCP/IP protocol operates at the Internet layer?

a) HTTP
b) IP
c) TCP
d) UDP

Answer: b) IP

Explanation: Internet Protocol (IP) operates at the Internet layer of the TCP/IP model and is responsible for routing packets across networks.

28. Which OSI layer translates data formats between different systems?

a) Transport layer
b) Presentation layer
c) Session layer
d) Data Link layer

Answer: b) Presentation layer

Explanation: The Presentation layer translates data formats between different systems, ensuring compatibility between applications.

29. Which OSI layer is responsible for framing data into packets?

a) Transport layer
b) Network layer
c) Data Link layer
d) Physical layer

Answer: c) Data Link layer

Explanation: The Data Link layer is responsible for framing data into packets, adding headers and trailers for error detection and flow control.

30. Which TCP/IP protocol operates at the Application layer?

a) IP
b) TCP
c) HTTP
d) ICMP

Answer: c) HTTP

Explanation: Hypertext Transfer Protocol (HTTP) operates at the Application layer of the TCP/IP model and is used for communication between web clients and servers.

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