

QUESTION BANK

1. Segmentation is done in
 - (a) transport layer
 - (b) network layer
 - (c) data link layer
 - (d) physical layer
2. Network layer activities are:
 - (a) logical addressing
 - (b) port addressing
 - (c) access control
 - (d) all of these
3. As the data packet moves from a lower layer to higher layer, the headers are
 - (a) added
 - (b) removed
 - (c) re-arranged
 - (d) modified
4. Hop-to-Hop delivery is related to
 - (a) data link layer
 - (b) network layer
 - (c) transport layer
 - (d) all of these
5. process-to-process delivery is related to
 - (a) data link layer
 - (b) network layer
 - (c) transport layer
 - (d) all of these
6. synchronization of bits is done by
 - (a) data link layer
 - (b) network layer
 - (c) transport layer
 - (d) none of these
7. Which one of the following OSI layers performs error checking of data?
 - (a) network
 - (b) transport
 - (c) data link
 - (d) physical
8. Flow control is the responsibility of
 - (a) data link layer
 - (b) transport layer
 - (c) both (a) and (b)
 - (d) application layer
9. Routing is done in
 - (a) network layer
 - (b) physical layer
 - (c) data link layer
 - (d) transport layer
10. Which of the following address cannot be changed?
 - (a) hardware address
 - (b) logical address
 - (c) both (a) and (b)
 - (d) none of these
11. Congestion control is done in
 - (a) MAC layer
 - (b) data link layer
 - (c) transport layer
 - (d) application layer
12. Session layer is used for
 - (a) dialogue control
 - (b) traffic control
 - (c) flow control
 - (d) error control
13. Network to network delivery is done on
 - (a) network layer
 - (b) transport layer
 - (c) application layer
 - (d) data link layer
14. port number is
 - (a) process number
 - (b) computer's physical address
 - (c) both (a) and (b)
 - (d) none of these
15. the upper layers of the OSI model are in correct order-
 - (a) session, application, presentation
 - (b) session, presentation, application
 - (c) session, application, presentation, physical
 - (d) application, presentation, session, physical
16. the lower layers of the OSI model are, in correct order-
 - (a) physical, system, network, logical
 - (b) physical, logical, network, system
 - (c) physical, transport, network, data link
 - (d) physical data link, network, transport
17. the Internet Protocol (IP) generally corresponds to which OSI layer?
 - (a) network (layer three)
 - (b) transport (layer four)
 - (c) data link (layer two)
 - (d) session (layer five)
18. MTU stands for
 - (a) minimum transfer unit
 - (b) minimum transmission unit
 - (c) maximum transmission unit
 - (d) maximum transfer unit

19. The part of OSI where one most commonly finds data encryption, compression, and other encoding for network communication is
- (a) application (layer seven)
(b) session (layer five)
(c) presentation (layer six)
(d) none of these
20. Which of these network devices belongs at the OSI physical layer (layer one)?
- (a) repeater (b) router
(c) switch (d) bridge
21. which of these network devices belong at the OSI data link layer (layer two)?
- (a) router (b) bridge
(c) VPN (d) none of these
22. Which of these network devices primarily functions at the OSI Network layer (layer 3)?
- (a) switch (b) gateway
(c) router (d) all of these
23. In OSI, then term PDU stands for
- (a) private data unit
(b) protected data unit
(c) public data unit
(d) protocol data unit
24. Which Protocol Data Unit (PDU) is employed at the Transport layer?
- (a) bits (b) frames
(c) packets (d) segments
25. Which Protocol Data Unit (PDU) is employed at the Network Layer?
- (a) bits (b) frame
(c) packets (d) segments
26. What is the Protocol Data Unit (PUD) employed at the Data Link Layer?
- (a) bits (b) frames
(c) packets (d) segments
27. What is the Protocol Data Unit (PDU) employed at the Physical Layer
- (a) bits (b) frames
(c) packets (d) segments
28. Which layer of OSI model provides services directly to user applications?
- (a) application (b) presentation
(c) session (d) transport
29. the bottom layer of the OSI model is about electrical and mechanical aspects of networking. What is the layer known as?
- (a) transport (b) data link
(c) physical (d) session
30. Which layer of the OSI model is responsible for routing packets from one network to another?
- (a) transport (b) network
(c) data link (d) physical
31. What network topology implements at least two paths to and from each node?
- (a) bus (b) ring
(c) star (d) mesh
32. What type of network topology is depicted by a single cable where devices connect using 'T' connectors?
- (a) star (b) bus
(c) ring (d) 10 base T
33. The physical layer is responsible for the transmission of ___ over the physical medium.
- (a) packets (b) bits
(c) message (d) all of these
34. Which layer of the OSI model deals with physical transmission across a physical network?
- (a) physical (b) data link
(c) network (d) transport
35. HTTP uses
- (a) TCP/IP protocol
(b) UDP protocol
(c) OSI protocol
(d) SMTP protocol
36. Baud rate means
- (a) number of bits transmitted per unit time
(b) number of signal units per second to represent bits
(c) number of pulse transmitted per unit time
(d) number of bits received per unit time

38. Manchester code is a
- (a) non-return to zero code
 - (b) polar code
 - (c) bipolar code
 - (d) both (a) and (b)
38. How many characters per second (7 bits + 1 parity) can be transmitted over a 2400 bps line in case of synchronous and asynchronous transfer (1 stop and 1 start bit)
- (a) 300, 300
 - (b) 300, 240
 - (c) 250, 300
 - (d) 240, 300
39. Which of the following options is not an useful property of Manchester line code for an Ethernet?
- (a) continuous energy
 - (b) continuous clock transition
 - (c) no DC component
 - (d) no signal change at a 1 to 0 transition
40. Which of the following statements best describes a hub?
- (a) all connected systems are in the same broadcast domain, but different collision domains
 - (b) all connected systems are in the same collision domain, but different broadcast domains
 - (c) all connected systems are in the same broadcast and collision domains
 - (d) all connected systems are in their own broadcast and collision domains
41. At which layer of the OSI model does a switch exist?
- (a) physical
 - (b) data link
 - (c) network
 - (d) session
42. Every port on a switch defines a:
- (a) collision domain
 - (b) broadcast domain
 - (c) broadcast and collision domain
 - (d) none of these
43. If a frame enters a bridge and the MAC address is not found in the MAC address table, what will the bridge do with the frame?
- (a) drop it
 - (b) forward it to all ports except the port it came in from
 - (c) hold it until the destination MAC address is discovered
 - (d) block it
44. A hub is a
- (a) router
 - (b) bridge
 - (c) repeater
 - (d) all of these
45. Modulation and demodulation are done by
- (a) hub
 - (b) modem
 - (c) bridge
 - (d) none of these
46. Which one of the following devices can be used to connect two LAN networks which use similar protocols?
- (a) bridge
 - (b) transceiver
 - (c) repeater
 - (d) gateway
47. Which one is not true for repeater?
- (a) A repeater connects segments of a LAN
 - (b) A repeater has filtering capability
 - (c) A repeater is a regenerator
 - (d) A repeater can't act as an amplifier
48. If switches are used to replace hubs on a network, which of the following statements is true?
- (a) the number of broadcast domains will increase
 - (b) the number of collision domains will increase
 - (c) the number of collision domains will decrease
 - (d) The number of broadcast domains will decrease
49. What layer of the OSI model is designed to perform error detection functions?
- (a) physical
 - (b) data link
 - (c) network
 - (d) transport
50. What layer of the OSI model is designed to perform error recovery functions?
- (a) physical
 - (b) data link
 - (c) network
 - (d) transport

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ANSWERS AND EXPLANATIONS1. *Ans. (a)*2. *Ans. (a)*3. *Ans. (b)*4. *Ans. (a)*5. *Ans. (c)*6. *Ans. (d)*7. *Ans. (c)*8. *Ans. (c)*9. *Ans. (a)*10. *Ans. (a)*11. *Ans. (c)*12. *Ans. (a)*13. *Ans. (a)*14. *Ans. (a)*15. *Ans. (b)*

By convention, the “upper layers” of OSI consist of session (layer five), presentation (layer six), and application (layer seven). All other layers of OSI belong in the “lower layers” category, although some references will claim that the transport layer (layer four) also belong in the upper layers. Overall, the distinction between upper and lower layers in OSI is not nearly as important as the ordering and purpose of each layer individually.

16. *Ans. (d)*

Layer one, the Physical layer, is followed by the data link, network, and transport layers. Together, these four layers comprise the lower layers of OSI. No “System” nor “Logical” layers exist in OSI. Some networking professionals consider only the lowest two layers (physical and data link) as “Lower” layers and consider network and transport as “Internetwork” layers.

17. *Ans. (a)*

Internet Protocol (IP) initiates the routing of datagrams and also breaks large datagrams into packets according to the needs of the data link layer. In the OSI model, the network layer owns responsibility for these functions.

18. *Ans. (c)*

MTU stands for Maximum Transmission Unit. An MTU is the largest amount of data that can be sent through the OSI data link layer as a single entity (not requiring fragmentation). One measures the size of an MTU in bytes; most Ethernet networks use an MTU of 1500 bytes.

19. *Ans. (c)*

Unlike some other layers of OSI, the presentation layer does not generally correspond to any particular network protocol. The presentation layer instead deals with data formats. For example, GIF (Graphic Interchange Format) and JPEG (Joint Photographic Experts Group) image formats fit into the presentation layer.

20. *Ans. (a)*

Repeaters operate on the electrical signal of network communication. They regenerate signals by amplifying their strength and sometimes reconstructing to recover from distortion. An active hub is perhaps the most common physical manifestation of a repeater. Being at the lowest level of OSI, repeaters lack the intelligence of higher level devices like bridges and routers.

21. *Ans. (b)*

A bridge device joins two network segments together. Bridges work at layer two, above the physical layer, so that they are capable of connecting network of different physical types (such as Ethernet and Token Ring or Token Ring and PDFI). At layer two, however, bridges lack knowledge of the protocol information passing through them.

22. *Ans. (c)*

Although some newer network devices are marketed as “Layer 3 switches,” traditional switches operate at the Data Link layer. A “Gateway” is a generic term for an internetworking system that can be implemented completely in software, completely in hardware, or as a combination of the two. Depending on its implementation, a gateway can operate at literally any level of OSI. Most run at an application layer or Network layer. Routers, on the other hand, are true layer 3 devices. Routers address and communicate with each other through a specific network layer protocol such as IP.

23. *Ans. (d)*

A Protocol Data Unit (PDU) is the type of a single “chunk” of data at a given layer of the OSI model. For example, the physical layer PDU is a single bit, whereas the network layer PDU is a packet.

24. *Ans. (d)*

The Transport layer packages data into segments for use by the next, lower layer of the OSI model.

25. *Ans. (c)*

The network layer packages data into packets for use by the next lower layer of the OSI model. Internet Protocol for example functions with IP packets.

26. *Ans. (b)*

The Data Link layer packages data into frames for use by the next lower layer of the OSI model.

27. *Ans. (a)*

The Physical layer organizes data into a bit stream for transmission over the physical network media.

28. *Ans. (a)*

The Application layer provides an interface so that applications may communicate with the network.

29. *Ans. (c)*

The Physical layer deals with mechanical and electrical characteristics of the network voltage, voltage change, physical data rates, physical connectors, and transmission distance. The physical layer provides the hardware the means of sending and receiving data on a carrier.

30. *Ans. (b)*

The Network layer uses Logical addresses to route packets from the source to the destination.

31. *Ans. (d)*

32. *Ans. (b)*

The Bus topology utilizes a single cable with “T” connectors at each node.

33. *Ans. (b)*

34. *Ans. (b)*

The Data Link layer provides transmission of data over a physical network link. This layer defines physical addressing and frame encapsulation. It also has functions of error control and flow control over a single link between network devices. In the Data Link layer, the frame is disassembled to bits for transmission in a sending device and reassembled to frame from bits in a receiving device.

35. *Ans. (a)*

37. *Ans. (d)*

39. *Ans. (d)*

41. *Ans. (b)*

43. *Ans. (b)*

45. *Ans. (b)*

47. *Ans. (b)*

49. *Ans. (b)*

The Data Link layer performs error detection on incoming frames. The Data Link layer finds corrupted data.

50. *Ans. (d)*

The Transport layer performs error recovery on incoming frames. It ensures data are received in order and without corruption.

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