

Question Bank

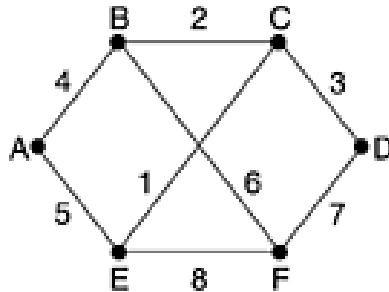
1. Give the brief comparison between OSI Reference Model and TCP/IP protocol suite.
2. Differentiate between a bus backbone and a star backbone?
3. What are the reasons for using Layered protocols? How does data transfer take place?
4. What are the number of cable links required for n node connected in mesh, ring, bus, and star topology? Draw the diagram for each of the topology mentioned here for n=4
5. If the data link layer can detect errors, then why do we need another error checking mechanism at the transport layer?
6. What are the basic concepts of One Bit Sliding Window Protocol and State drawbacks? What is Piggybacking method? Give a figure to show Piggybacking for Stop-And-Wait ARQ normal operation mechanism.
7. Discriminate between the send window and receive window for a Go-Back-N control scheme and a selective repeat retransmission scheme. Also show the control variables. Show that the size of sender window must be less than 2^m not equal to 2^m in Go-Back-N-ARQ. Choose m=2 to justify your answer.
8. Why logical addresses are needed, when we already have physical addresses?
9. Compare and contrast circuit, message and packet switching techniques.
10. What is the position of the transmission media in the OSI or the TCP/IP model? Compare the Twisted pair with Coaxial cable and also mention the reason of twisting the wires in twisted pair cable?
11. Explain the working of optical fiber transmission media.
12. What is the baud rate of the standard 10-Mbps 802.3 LAN?
13. What do you mean by CSMA? Distinguish between 1-persistence and p-persistence methods?
14. How CSMA reduce the possibility of collision? Discuss the persistent strategy of CSMA. How does CSMA/CD differ from CSMA/CA?
15. Differentiate the followings.

- (1) Data Link Layer and Transport Layer
- (2) Flow Control and Congestion Control

16. What is HDLC protocol? Explain the HDLC with followings
- Configuration and Transfer mode
 - Frame format
 - Types of HDLC frames
17. Why is the channel throughput doubled in slotted ALOHA compare to pure ALOHA. Explain.
18. How bridge different from a repeater? What are the advantages and disadvantages of each?
19. In HDLC and PPP, state which one is byte oriented and which one is bit oriented.
20. Give a brief comparison of the followings.
- Static Channel Allocation and Dynamic Channel Allocation
 - Token Bus and Token Ring
 - Fast Ethernet and Gigabit Ethernet.
21. A Channel has a bit rate of 4 Kbps and propagation delay of 20 msec. What will be the size of frame range so that Stop-And-Wait gives an efficiency of at least 50 percent?
22. Discuss the purpose of Network Address Translation (NAT). Explain NAT with suitable figure. Also show how address translation work for outgoing packets and incoming packets.
23. A series of 6 bit frames 100100 is to be transmitted across a data link using a CRC for error detection. A generator polynomial of x^3+x^2+1 is to be used. Illustrate the CRC generation process and the CRC checking process.
24. Ten thousand airline reservation stations are competing for the use of a single slotted ALOHA channel. The average station makes 18 requests / hour. A slot is 125 μ sec. What is the approximate total channel load?
25. A group of N stations share a 56-Kbps pure ALOHA channels. Each station outputs a 1000-bit frame on an average of once every 100 sec, even if the previous one has not yet been sent (e.g., the stations are buffered). What is the maximum value of N?
26. A system sends a signal that can assume 8 different voltage levels. It sends 400 of these signals per second. What are the baud and bit rates?

27. Define the congestion. Give the few reasons why congestion occurs? What are the principles of congestion controls? Define the following in context of congestion of Datagram subnet.
(a) The warning bit (b) Choke packet © jitter control.
28. Explain the Token Bucket Traffic Shaping Algorithm with suitable figure.
29. Differentiate the following
- i. Physical topology and logical topology.
 - ii. B-ISDN and N-ISDN.
 - iii. LLC layer and MAC layer.
 - iv. Token Bus And Token Ring
30. Sketch the Manchester encoding and Differential Manchester encoding for the bit stream 0001110101. For differential Manchester encoding, assume that the line state is initially at low state.
31. Why is the channel throughput doubled in slotted ALOHA compare to pure ALOHA?
32. What is fragmentation? Give the comparison between Transparent and Non Transparent strategy. Explain with figure.
33. Explain the three way handshaking mechanism used in establishing a connection between two transport strategies. How is established connection terminated?
34. Are both UDP and IP unreliable to the same degree? Why or why no
35. What is Cryptography? Distinguish between Symmetric key cryptography and Asymmetric key cryptography. Explain with figure.
36. What are the problems for full implementation of voice over IP?
37. What is count-to-infinity problem? Explain with an example.
38. The IP address of a host is 198.123.46.237. Four networks are allowed for this network. What is subnet mask?
39. A network on the internet has a subnet mask of 255.255.240.0. What is the maximum number of hosts per subnet?
40. Find the sub network address and the host-id, where IP-address is 120.14.22.16 and Mask is 255.255.128.0.
41. A company is granted a site address 201.70.64.0. The company needs six subnets, Design the subnets.
42. Compare and contrast TCP with RTP. Are both doing the same thing?

43. Can we say UDP plus RTP is the same as TCP?
44. An ATM network uses a token Bucket scheme for traffic shaping. A new token is put into the bucket every 5 μ sec. Each token is good for one cell, which contains 48 bytes of data. What is the Maximum sustainable data rate?
45. For the following subnet, Distance vector routing is used and the vectors that have just come into router C, from B: (5,0,8,12,6,2); from D: (16,12,6,0,9,10); and from E: (7,6,3,9,0,4); the measured delays to B,D, and E are 6,3,5 respectively. What is C's new routing table? Give both the outgoing line to use and the expected delays.



46. A block of addresses is granted to a small organization. We know that one of the addresses is 205.16.37.39/28. Find
- Default mask of given class
 - Netid and Hostid
 - The first address
 - The last address
 - The number of addresses.
47. Sketch the TCP header and explain, also list the major differences between TCP and UDP.
48. Write short notes on the following
- Data Compression
 - SMTP
 - ARP & RARP
 - VOIP
49. What are the different routing algorithms? Compare the distance Vector routing and link state routing.
50. What is fragmentation? Give the comparison between Transparent and Non Transparent strategy. Explain with figure.
51. Write short notes on the following
- RPC
 - Tunneling
 - Data Compression
 - DNS
 - MIME
 - FTP