Computer NetworksQuestion Bank

UNIT- 1

1. List various applications of Computer Networks.
2. Classify the networks based on transmission technology and based on scale.
3. What is the need of layering?
4. Discuss the design issues for layering.
5. Give the classification of network hardware components
6. Differentiate service and protocol.
7. Explain about the basic service primitives.
8. Explain about ISO/OSI reference model.
9. Explain about TCP/IP reference model.
10. A system has an n-layer protocol hierarchy. Applications generate messages of length M bytes. At each of the layers, an h-byte header is added. What fraction of the network bandwidth is filled with headers?
11. Which of the OSI layers handles each of the following:

(a) Dividing the transmitted bit stream into frames.

(b) Determining which route through the subnet to use.

12. Discuss the design issues of the network layer.
13. Give the significance of Internet Super Server.
14. Distinguish Asynchronous I/O and Non Blocking I/O.
15. What is Marshalling and unmarshalling in the context of RPC.
16. Explain about elementary socket system calls.
17. Explain about advanced socket system calls.
18. What is meant by expedited data or out of band data?
19. Explain about various socket options.
20. What are reserved ports?
21. Define port and socket.
22. Explain the significance of Daemon process.

UNIT-2

1. Distinguish between connection oriented and connectionless services.
2. Compare virtual circuit subnets and datagram subnets.
3. Briefly explain about Store and Forward Packet switching.
4. State the principle of optimality.
5. Explain about shortest path routing. (Dijkstra's Algorithm)
6. Explain about Flooding and Selective Flooding.
7. Mention the advantages and drawbacks of flooding.
8. Explain Distance Vector routing with suitable example.
9. What are the drawbacks of Distance Vector routing. (Count to infinity problem)

10. Explain about Link state routing algorithm.
11. Explain about Hierarchical routing.
12. Explain about broadcast routing.
13. Explain about Multicast routing.
14. Explain about routing in mobile hosts.
15. Explain about routing in Adhoc networks.
16. Explain about the congestion control techniques.
17. Describe two major differences between the warning bit method and the RED method.
18. Mention the QoS requirements.
19. Discuss the techniques for achieving good QoS.
20. What is Jitter? How can it be controlled?
21. Explain about the Resource reservation protocol(RSVP)
22. Explain about label switching and MPLS.
23. Distinguish between Expedited forwarding and assured Forwarding.
24. Consider the user of differentiated services with expedited forwarding. Is there a guarantee that expedited packets experience a shorter delay than regular packets? Why or why not?
25. Discuss the inert connecting elements in various protocol layers.
26. Explain about concatenated virtual circuits and connectionless internetworking.
27. How tunneling helps to forward packets between similar networks with a different network between them?
28. What is the need of fragmentation? Explain about different types of fragmentation.
29. Explain about Network Address Translation.
30. Explain about various internet control protocols.(ARP, RARP, BOOTP,DHCP)
31. What are the methods available for connecting different networks?

UNIT-3

1. Draw and explain about different fields of IPv4 header format.
2. Differentiate the features of IPv4 and IPv6.
3. Explain about the interoperability between IPv4 and IPv6.
4. A network on the Internet has a subnet mask of 255.255.240.0. What is the maximum number of hosts it can handle?
5. Explain about classful addressing.
6. Explain about CIDR.
7. How subnetting is used for dividing a network into two or more subnetworks?
8. Explain about various internet control protocols.
9. Explain about OSPF.
10. Explain about BGP

11. Explain about internet Multicasting.
12. Explain about Mobile IP.
13. Give the UDP header format and explain each of the fields.
14. What is the 32-bit binary equivalent of the IP address 220.2.34.9.
15. Draw the TCP header format and explain each of the fields.
16. Explain how TCP provides reliable services at the transport layer.
17. Discuss the issues of connection management and congestion control in TCP.
18. Differentiate TCP and UDP.

UNIT-4

1. What is Domain Name system.
2. Explain how DNS works?
3. What is resource record? Explain about various fields of DNS record.
4. Differentiate Recursive mapping and Iterative mapping in DNS.
5. Explain about Simple Network Management Protocol (SNMP).
6. Explain about the architecture and services of email system.
7. Explain about Simple Mail Transfer Protocol. (SMTP)
8. Explain about POP3 and IMAP.
9. Write short notes on VOIP.
10. Explain about streaming audio.
11. Explain about video on demand.
12. Explain about architecture of World Wide Web(WWW).
13. Differentiate static and dynamic web pages.
14. Explain about HTTP protocol.
15. Explain about wireless web.

UNIT-5

1. Explain about various encryption techniques.
2. Differentiate stream ciphers and block ciphers.
3. Compare and contrast symmetric key encryption and Asymmetric key encryption.
4. Explain the purpose of Digital Signatures.
5. Explain about various techniques for implementing digital signatures.
6. Explain about DES algorithm.
7. Explain about AES algorithm.
8. Explain the RSA algorithm along with the process of encryption and decryption at the sender and receiver respectively.
9. List various cipher modes and explain any two of those.
10. Differentiate DES and triple DES.
11. Explain about authentication using KDC.
12. Explain about Authentication using Kerberos.

13. Explain about Authentication using public key cryptography.
14. Explain about Authentication using shared secret key.
15. Explain about Diffie Hellman key exchange algorithm.
16. Explain about various key management schemes.
17. How man in the middle attack defeats authentication protocol using shared secret key?
18. How man in the middle attack defeats Diffie-Hellman key exchange algorithm?
19. Explain about web security.
20. Explain about email security.
21. Explain about communication security.