1. What do you mean by Domain Name Space and Fully Qualified domain name (FQDN)?
2. Explain the working of DNS and how it uses recursive and iterative resolution with a diagram
3. Briefly describes the different types of Resource records used in DNS.
4. Describe how Web caching can reduce the delay in receiving a requested object.
5. Will Web caching reduce the delay for all objects requested by a user or for only some of the objects? Why?
6. What do you mean by persistent and non-persistent connections?
7. Explain the working of HTTP specifying the different steps associated between a HTTP client and server. Also, specify different types of methods used by HTTP.
8. Briefly explain the working of an E-mail Application with the help of a neat block diagram showing functional blocks like UA, MTA, MAA, Mail-Box, Message-Queue.
9. Explain, why a push protocol will not be suitable rather a pull protocol will be used to download a message at the client end?
10. Why DNS use UDP? Draw and explain the TCP segment format. Answer the followings: -
    – The minimum and maximum size of a UDP segment.
    -The minimum and maximum size of the application-layer payload data that can be encapsulated in a UDP segment.
    – Minimum and maximum size of the ethernet frame.
11. Explain the difference between packet-switched networks and circuit-switched networks. Explain the different types of packet delays in a network and how they affect network parameters. In a packet switch network having Hops= 4, transfer 20 packets from A to B given packet size is L bits. The bandwidth to transfer data is R Mbps and the speed of propagation is S meter/sec. Assume processing delay= P seconds and the distance between two points is D meters. Find the total time required for 10 packets to reach A from
12. Explain how Go-Back-N-ARQ is different than Selective repeat ARQ with diagrams. Why the window of Go-Back-N is selected as less than 2m, explain with the value of m=4. Assume that, in a Stop-and-Wait system, the bandwidth of the line is 1 Mbps, and 1 bit takes 20 milliseconds to make a round trip. If the system data packets are 1,000 bits in length, what is the utilization percentage of the link?

13. What is HTTP persistent and nonpersistent connections? Briefly describes the different methods used in HTTP request message with examples.
14. Discuss the role of DNS during communication in a computer network. Compare and contrast iterative and recursive queries with a suitable diagram.
15. Briefly describe role of user agent(UA), mail transfer agent(MTA), multipurpose Internet mail extension(MIME) and post office protocol (POP) in E-mail system.
16. The transport layer protocols used for file transfer, real
17. time multimedia, DNS and email, respectively are:
    (a) TCP, UDP, TCP and TCP

(b) UDP, TCP, UDP and TCP
(c) TCP, TCP, UDP and TCP
(d) TCP, UDP, UDP and TCP

18. Which of the following layers is an addition to OSI model when compared with TCP IP model?
(a) Application layer
(b) Presentation layer
(c) Session layer
(d) Session and Presentation layer
19. The default connection type used by HTTP is _____
(a) Persistent
(b) Non-persistent
(c) Can be either persistent or non-persistent depending on connection request
(d) None of the mentioned

20. DNS database contains _____
(a) Name server records
(b) Hostname-to-address records
(c) Hostname aliases
(d) All of the mentioned

21. Which one of the following statements is NOT correct about HTTP cookies?
(a) A cookie gains entry to the user's work area through an HTTP header
(b) A cookie has an expiry date and time
(c) A cookie is a piece of code that has the potential to compromise the security of an Internet user
(d) Cookies can be used to track the browsing pattern of a user at a particular site
22. Identify the correct sequence in which the following packets are transmitted on the network by a host when a browser requests a webpage from a remote server, assuming that the host has just been restarted.
(a) DNS query, TCP SYN, HTTP GET request
(b) TCP SYN, DNS query, HTTP GET request
(c) HTTP GET request, DNS query, TCP SYN
(d) DNS query, HTTP GET request, TCP SYN

23. Name the transport layer protocols used to support electronic mail and domain name service?

24. What is use of GET method in HTTP. Explain briefly can a client put a condition while requesting a server for any resource.

25. Assume that a new client-server application program that requires persistent connection. Can we use UDP as the underlaying transport layer protocol for this new application?
26.Explain the working of the DNS protocol in detail. What is web caching, and how it is helpful load over network?
27. With non persistent connection between browser and origin server, is it possible for a single TCP segment to carry two distinct HTTP request message? Explain your answer.
28. Distinguish transmission and propagation delay
29. List two ways in which the OSI reference model and the TCP/IP are the same & list two ways in which they differ.
30. A basic telephone network is an example of_____. (a) Packet Switching (b) Cell Switching (c) Circuit Switching (d) Message Switching (e) none of these choices
31. _____is the default port number for HTTP?
32. During data communication in mobile network whether packet switching or circuit switching is prefered, explain
33. Suppose a user wants to acess a webpage using a given URL. The IP address of the HTTP server is initially unknown. What transport and application-layer protocols besides HTTP are needed in this scenario?
34.Write down different layers of TCP/IP model. Explain each One of them with example. (
35.What isthe difference between Packet switching and Circuit switching? Explain with examples
36.Compare and contrast GO-Back-N-ARQ protocol with Selective-Repeat ARQ protocol w.r.t. send and receive window size, timers and acknowledgments.
37.Describe the various layers of OSI Model. Explain the functionality of for each layer.
38. Describe the E-mail architecture in detail. Explain why SMTP can not be used at the receiver end for receiving the E-mail
39.Describe how Web caching can reduce the delay in receiving a requested object. Will Web caching reduce the delay for al l objects req uested by a user or for only some of the objects?
40.What advantage does a circuit-switched network have over a packet-switched network? What advantages does TDM have over FDM in a circuit-switched network?
41.Using Stop-and-Wait, how many bits are needed for the sequence number? Justify with proper example.
42.What is the difference between pull and push network protocols? Explain the difference by using two example protocols.
43.Describe how Web caching can reduce the delay in receiving a requestedobject. Will Web caching reduce the delay for all objects requested by a useror for only some of the objects? Why?
44.Briefly describe what HTTP is and sketch its operation using a simple figure (i.e., the typical messages exchanged during operation of HTTP)
45.What is DNS and what is it used for? If all DNS servers could be "crashed" (taken offline), what would happen to the Internet (be precise)
46.OSI is called as a model, whereas TCP/IP is called as a protocol suite. Be precise.
47.Explain in detail how SMTP send your email to your friend's mailbox.

48.A channel has a bit rate of 4 Kbps and a propagation delay of 20 msec. For what frame size does the stop-and-wait protocol gives a channel utilization of at least 50%.
49.What is a HTTP REQUEST and RESPONSE Message header? Explain both of the header
50.Consider different activities related to email. m1: Send an email from a mail client to a mail server m2: Download an email from mailbox server to a mail client m3: Checking email in a web browser Which is the application level protocol used in each activity?
51.What is a proxy server? Why it is used? What are the pros and cons of this?
52.Why in selective repeat protocol the maximum window size is 2m-1while in Go-Back-N it is 2m-1? Justify your answer.
53.What are DNS Records? State which types of records are maintained particularly by authoritative and nonauthoritative DNS Server with a suitable example
54. In SMTP a sender sends unformatted text writes and explains the MIME header for his message
55. In case DNS is made on a centralized design list two disadvantage and justifies your answer.
56. Incase all the DNS servers are crashed ( offline) will the user be able to access the internet? Explain in brief.

Short Notes:

a. Packet Switching Vs. Circuit switching
b. Web Caching
c. Electronic mail
d. Persistent vs Non-Persistent Connections
e. Client-server vs Peer-to-Peer Architecture
f. Recursive vs Iterative DNS query
g. Connection-oriented vs Connectionless communication
h. conditional - GET
i. Centralized P2P and decentralized P2P
j.