1. List different functions of Physical layer in OSI model
2. Difference between half duplex and full duplex?
3. Define dialog control?
4. What are the services provided by the application layer?
5. What are the responsibilities of network layer in OSI model?
6. Explain transport layer protocols in TCP/IP?
7. Describe different type of addresses
8. Differentiate TCP/IP and OSI model
9. Describe ARP and RARP
10. Define IGMP and ICMP
11. What are the functions of data link layer?
12. Which are the different types of Addresses in TCP?IP?
13. What is Framing?
14. What is protocol and what are its components?
15. Explain flow control mechanisms in datalink layer?
16. Describe sliding window protocol?
17. What is odd and Even Parity?
18. What is the polynomial representation of 101100 and Explain Degree of polynomial?
19. Given the dataword 1001 and the divisor 1011.Generate CRC encoder?
20. What is ARQ in error correction?
21. What is Go-Back-N ARQ?
22. Describe sequence numbering in stop and wait ARQ?
23. What is Selective Repeat ARQ?
24. How single bit error differ from Burst error?
25. Explain the frame format of Ethernet
26. Briefly explain any 3 IEEE standards
27. Define the type of the following destination addresses
    4A:30:10:21:10:1A
    47:20:1B:2E:08:EE
    FF:FF:FF:FF:FF:FF
28. Summarise 4 Ethernet generations
29. Illustrate BSS of IEEE 802.11
30. Describe IEEE 802.11 Frame Format.
31. State the three MAC frame types.
32. What is hidden terminal and Exposed terminal problem?
33. Explain IEEE 802.11 collision avoidance
34. With the help of a diagram describe Piconet.
35. What is Scatternet.
36. Explain Bluetooth architecture.

37.What is a Virtual Circuit?
38. What are Common WAN protocols
39..Explain ATM Protocol Architecture.
40.What are Virtual circuits and Virtual Paths?
41.Explain ATM cell format.
42.What is the significance of ATM Adaptation layer?
43.What are the two types of switching methods?
44.Explain connection oriented and connectionless service.
45.What are the network layer services provided at the source computer?
46.Briefly explain the services provided at router.
47.What is a tear down phase?
48.Explain dotted decimal notation in Ipv4 addressing and hexadecimal notation in Ipv6 addressing.
49.List the classes ,netid and hostid in classful addressing
50.A block of addresses is granted to a small organization .We know that one of the addressis 205.16.37.39/28.Identify the first ,last and number of addresses in a block.
51.Examine a mask in IPV4 addressing
52.Analyze about multicast addresses in Ipv6 addresses.
53.Examine the functionality of network layer
54.Define fragmentation and the need to fragment some packets.
55.An IP datagram of size 1000 bytes arrives at a router .The router has to forward this packet on a link whose MTU is 100 bytes .Assume that the size of the IP header is 20 bytes .Find the number of fragments that the IP datagram will be divided into for transmission
56.Compare between IPV4 and IPV6 packet header
57.Illustrate the steps of header transition procedure from IPV6 to IPV4
58.Explain about DHCP
59.Explain ARP operation.
60.Summarize about proxy ARP
61.Describe mapping of logical to physical address
62.Analyze how DHCP provides static and dynamic address allocation
63.Explain the concept of redirection in ICMP
64.Demonstrate the general format of ICMP messages .
65.Explain IP V6 extension Header
66.Explain the purpose of neighbour discovery messages in ICMPv6.
67.Examine briefly informational messages in ICMPV6.
68.Describe an autonomous system
69.What is dynamic Routing protocols.
70.Discuss about RIP timers.

71. Demonstrate two node instablity in Distance Vector Routing.
72. Classify types of autonomous systems in BGP
73. What is process to process communication?
74. Define port address and socket address.
75. Discuss the UDP header format.
76. Differentiate between ephemeral port number and well known port number.
77. Explain the main idea of UDP.
78. What is stream delivery service?
79. TCP is a reliable transport protocol. Justify?
80. Write the need for multiplexing and demultiplexing in TCP?
81. What is a segment?
82. Suppose a TCP connection is transferring a file of 5000 bytes. The first byte is numbered 1001. What are the sequence numbers for each segment if data are sent in five segments each carrying 1000 bytes?
83. Explain the control flags in TCP segment header?
84. Define SYN flooding attack.
85. What do you mean by three way handshaking?
86. Discuss the connection management in TCP.
87. Explain half close connection termination.
88. Define silly window syndrome.
89. Define checksum.
90. What is an out of order segment?
91. Discuss Nagle's Algorithm.
92. Brief the solutions to syndrome created by receiver.
93. List the timers used by TCP.
94. Define congestion control.
95. Discuss multiplicative decrease.
96. Explain keep alive timer.
97. How is congestion avoided in TCP?
98. What is DNS?
99. Explain the concept of name spaces
100. How DNS works over internet?
101. Ilustrate Domains in internet with example.
102. Elaborate the concept of DNS resolution.
103. Explain The concept of remote login?
104. What is telnet?
105. Describe the general format of telnet commands
106. What do you mean by network virtual terminal?

107. Mention and explain any three Common options used with the telnet command
108. What is FTP?
109. How connection is established in FTP?
110. What are the two different approaches used in FTP communication?
111. List out and describe any 6 commands used with FTP
112. What do you mean by anonymous FTP
113. Explain the Architecture of WWW
114. Describe a general format of URL
115. What do you mean by web document
116. Explain HTTP
117. What is the difference between Persistent and Non persistent connection
118. Describe the Email architecture
119. Write about web based mails
120. What is SMTP
121. What do you mean by Post office protocol
122. What is IMAP

1. **a) Explain about Network support layers in OSI model?**
   or
   b) Explain about User support layers in OSI?
2. **a) Describe different layers in TCP/IP model?**
   or
   b) Illustrate with example different type of addresses?
3. **a) Explain Physical layer Functions?**
   or
   b) Explain various transmission media with examples?
4. **a) With neat diagram explain flow control mechanisms in data link layer?**
   or
   b) With neat diagram explain error control mechanisms in data link layer?
5. **a) Explain ARQ Protocols**
   or
   b) Explain CRC encoder and decoder with example?

6. a) Explain the frame format of wired LAN

or

b)Briefly Explain Ethernet Evolution

7. a) What are thw two types of services offered by IEEE 802.11.Explain in detail (BSS & ESS)

or

b) Briefly Explain the frame format of Wireless LAN

8. a) Describe about Wireless LAN

or

b)Explain Bluetooth and its architecture

9.a) Describe Asynchronous Transfer mode Protocol architecture

or

b)Explainabout LAN Connecting Devices

9. a) **Breifly explain different switching methods**

or

b)What are the services provided by the Network layer?Explain.

10.a) **Explain about address space in IPV6**

or

b)What do you mean by hierarchy in classless addressing?Explain two-level and three level hierarchy.

11.a)Discuss about fragmentation in IPV4.

or

b)Describe about packet format of IPV6.

12.a)Discuss the four different cases in which the services of ARP can be used. or

b)Illustrate about packet format of ARP

13.a) **Discuss about error reporting messages of ICMP**

or

b) **Discuss about neighbour discovery messages of ICMPV6**.

14.a) Explain Intra Domain and Inter Domain Routing Protocols . or

b)Explain RIP Message format .

15.a) **Briefly explain the services offerd by Transport Layer**.

or

b)**Define UDP and Explain its header format.**

16.a)**What are the services provided by TCP?**

or

b) **Explain the features of TCP.**

17.a)**Discuss connection establishment in TCP with diagrammatic illustrations.**

or

b)**Explain TCP segment header format.**

18.a) **Explain about SWS in TCP**

or

b) **Explain TCP'S option for Connection Termination.**

19.a) **Explain congestion control mechanism offered by TCP.**

or

b) **Discuss about the timers used in TCP.**

20.a) **Explain DNS and how its work on internet**.

or

b) **Discuss about 1)DNS resolution 2) DNS Messages and 3) Types of records**

21.a**)** **Discuss about Telnet**

or

b) **Discuss about Telenet command format with different options**

22.a)**Discuss about File Transfer Protocol**

or

b) **Explain How Connection establishment and Communication happens in FTP**

23.a) **Discuss about WWW and its architecture**

or

b) **Explain HTTP**

24.a) **Discuss about email & its architecture**

or

b) **Explain SMTP and POP Protocols**