PART-A Questions

1. Differentiate between internet and intranet.
2. What are the two types of spread spectrum?
3. Define hamming distance.
4. What are carrier sense protocols?
5. What are the two types of routing algorithms?
6. What is spanning tree?
7. Expand the term TPDU.
8. Packing the parameters is called ----------.
9. What are the two parts of message inside the envelope?
10. The traditional way to handle forms and other interactive web pages is a system called ----------
11. OSI stands for _____reference model.
12. _____, _____and _____are called guided transmission media.
13. A data in the Datalink Layer can be called as _____.
14. _____ is multiple access protocol.
15. IP Version _____is 32 bits long.
16. RIP is _____routing.
17. _____is a connection-oriented protocol.
18. Combination of IP Address and port address is called _____address.
19. _____is a method called mapping name with IP Address.
20. _____is a protocol.
21 Why OSI is named so?
22. Give the formula to calculate attenuation in decibels.
23. What are the two types of flow control used in data link layer?

24. What is multicast?
25. What are routing algorithms?
26. Define congestion.
27. What is transport entity?
28. Mention any two timers used in TCP.
29. ---------- refers to the process of creating messages and answers.
30. Expand XML and XSL
31 What is a Client Program?
32. Consider sending a packet from a sending host to a receiving host over a fixed route. List the delay components in the end-to-end delay. Which of these delays are constant and which are variable?
33. What is the difference between network architecture and application architecture?
34. What is the difference between persistent HTTP with pipelining and persistent HTTP without pipelining?
35. Consider a TCP Connection between Host A and Host B. Suppose that the TCP Segments traveling from Host A and Host B have source port number 'x' and destination port number 'y'. What are the source and destination port numbers for the segments traveling from Host B to Host A?
36. State True or False:

    The Size of the TCP RcvWindow never changes throughout the duration of the connection.
37. What is the difference between forwarding and routing?
38. What is the 32-bit binary equivalent of the IP Address 223.1.3.27?
39. Expand MAC and CDMA.
40. Define "Managing Entity".
41. Define Protocol.

42. Within an Internet Service Provider's network, the points at which they connect to other Internet Service Providers are known as _____.

43. What is a socket?

44. Name the protocols involved in a web based Email application like Gmail, Hotmail etc.

45. The port numbers ranging from 0 to 1023 are called as _____.

46. What is flow control?

47. Expand:

    a. NAT

    b. CIDR

48. List down the fields present in IPv4 header but not in IPv6 header.

49. Define managing entity.

50. What is the maximum size of an Ethernet data frame?

51 List the functions of session layer.

52. State the use of start and stop bits in serial communication.

53. Error detection at the data link layer is achieved by _____.

54. Go-back-N method requires more storage at the receiving site. Justify.

55. What is meant by tunneling?

56. Define congestion.

57. What is meant by sliding window syndrome?

58. List the primitives of transport service.

59. How do you make an image clickable in HTML?

60. List the DNS record types.

61 How many characters per sec (7 bits + 1 parity) can be transmitted over a 2400 bps line if the transfer is synchronous (1 start and 1 stop) bit.

62. State the functions of the transport layer.

63. What is the Hamming distance between 001111 and 010011?
64. In the carrier sense network if the prevailing condition is a 'Channel busy', then the technique can be used in non-persistent networks and then it results in randomized wait and sense. Justify.
65. Define packet flooding.
66. Is fragmentation needed in concatenated virtual-circuit internets or only in datagram systems?
67. End-to-end connectivity is provided from host-to-host at the transport layer. Justify.
68. What is meant by marshalling?
69. DNS uses UDP or TCP. Justify.
70. When Web pages are sent out, they are prefixed by MIME headers. Why?

71 List out the different media used for data transmission over the network.

72. Define Packet.
73. What are the common architectures used for network applications?
74. What the IP address specify.
75. What is meant by UDP?
76. Define Receive window.
77. What are the important functions of network layer?
78. What is HOL Blocking?
79. What is adapter?
80. Give the Ethernet frame structure.
81. What are the two most important protocols in the internet?
82. Define TCP.
83. API stands for _____.
84. What is the use of IP address?

85. Define Demultiplexing.

86. The port numbers ranging from 0 to 1023 are called _____.

87. What is subnet?

88. CIDR stands for _____.

89. What do you mean by error detection?

90. Define full – duplex.

91. Define protocol.

92. What are the two fundamental approaches to build a network core?

93. _____and_____ are the two common architectures for network applications.

94. Define a web page.

95. A transport layer protocol provides for_____ between application processes running on different hosts.

96. Define UDP.

97. _____ allows a datagram to be delivered to any one of a group of hosts.

98. What is a Gateway router?

99. What do you mean by error correction?

100. Define half-duplex.

101. What is public internet?

102. What is a Network protocol?

103. What is the use of User Agent?

104. What services might a network application need from a transport protocol?

105. Define Multiplexing.

106. What is the use of UDP checksum?

107. What is the job of network layer routing protocol?

108. How can you classify the routing algorithms?

109. What is an adapter?
110. Which error detection mechanisms are used in modern computer?
111. The Internet's connection-oriented service provides reliable data transfer by using _____.
112. Name the two broad classes of packet-switched networks.
113. HTTP defines how_____ request Web pages from servers.
114. Name the two sorts of client-server applications.
115. The port numbers ranging from 0 - 1023 are called _____.
116. A TCP connection provides for _____data transfer.
117. Algorithms with global state information are often referred to as _____.
118. The _____ connects the router's input ports to its output ports.
119. Adapters are also commonly known as _____.
120. The simplest form of error detection is the use of a _____.
121. What is meant by data communication?
122. List out the types of network.
123. What are the responsibilities of data link layer?
124. What is redundancy?
125. What are the responsibilities of network layer?
126. What is a virtual circuit?
127. What is the difference between network layer delivery and the transport layer delivery?
128. What is meant by segmentation?
129. What is the difference between a user agent (UA) and a mail transfer agent (MTA)?
130. Write down the three types of WWW documents.
131 Define Protocol.

132 How do you calculate processing delay?
133 A process sends message into or receive message from network through its_____.
134 If HTTP server maintains no information about clients, HTTP is said to be _____.
135 List out the three additional protocol capabilities required in ARQ protocols to handle the presence of bit errors.
136 Draw the UDP segment structure.
137 What are three phases in a virtual circuit?
138 Expand CIDR.
139 The ability of a receiver to both detect and correct errors is known as _____.
140 List out five areas of network management

141. What are client server model internet applications?
142. What is Asymmetric Digital Subscriber Line (ADSL)?
143. What is the major role of DNS?
144. What is the purpose of list command in FTP?
145. List out the fields of UDP header.
146. What is port number? Give its range.
147. What are functions of network layer?
148. List out the components of a router.
149. What is CSMA/CD?
150. What are the functional areas of Network Management?
151 List the characteristics of LAN.
152. What is meant by peer entity?
153. Define the term socket.
154. Mention the types of HTTP protocol.
155. What factors determine the reliability of a delivery?
156. What is the expression to calculate RTT?

157. How does a router differ from a bridge?

158. What are the three elements of distance vector routing?

159. Calculate the hamming code for the original data 10011010.

160. Write the frame format of IEEE 802.3

161. A distributed application is one in which the client and the server applications resides in _____.

162. DSL is an acronym of _____.

163. The process in which the client and server exchange transport layer control information with each other is called _____.

164. MIME is an acronym of _____.

165. The job of delivering the data in a transport-layer segment to the correct socket is called _____.

166. GBN is an acronym of _____Protocol.

167. Transfer of a packet from an incoming link to an outgoing link with a single router is called _____.

168. The component that connects the router's input ports to its output ports is called the _____.

169. A board that contains RAM, DSP chips, host bus interface and a link interface is called _____.

170. The task of periodically checking to ensure that all the hosts are up and operational is called as _____.

171. What is internet?

172. What is ISP?

173. Discuss the basic model of FTP.

174. Write down the three types of WWW documents.

175. What are the types of multiplexing?

176. Why does congestion occur in network?

177. What is a virtual circuit?

178. Define Masking.

179. What are the responsibilities of data link layer?

180. Mention the different kinds of Ethernet networks.

181 What is an intranet?

182 List out the delays in occurring in packet-switched networks.

183. Define Socket.

184. What is meant by Authentication?

185. A transport layer protocol provides logical communication between _____.

186. Define Datagram.

187. What is the purpose of the routing algorithms?

188. What is an interface?

189. Define Frames.

190. What do you mean by flow control?

191. List any two advantages of using fiber optics in physical media.

192. State the significance of presentation layer.

193. What is a name space in DNS?

194. Why is HTTP called a stateless protocol?

195. Which one of the two popular transport layer protocols is more preferable for a teleconferencing application? Why?

196. Define flow control in transport layer.

197. List the fields of an IPv4 datagram header that participate in fragmentation and reassembly.

198. Name the components of a link state packet.

199. How does CSMA/CD mechanism function in Ethernet?

200. Differentiate physical addressing and logical addressing.

PART-B Questions

1 What are the two types of services offered by the layers?

2. Write the algorithm for computing the checksum.

3. List out the advantages of reverse path forwarding algorithm.

4. Write the Nagle's algorithm.

5. Draw the WAP protocol stack structure.

6. What are the different network topologies to organize computer networks?

7. What are the types of ethernet?

8. List out the ranges of classful IP Addresses.

9. Define jitter and bandwidth.

10. Differentiate plain text and cipher text.

11. Write about the types of hand off used by mobile phones.

12. List out the three primary reasons for which 802.3committee decided to go with a souped up Ethernet?

13. Differentiate between adaptive and non adaptive routing algorithms.

14. What are the techniques by which packet life time can be restricted to a known maximum?

15. What are the two subsystems of email systems?

16. Differentiate Circuit Switching and Packet Switching.

17. Brief about the general format of HTTP request message.

18. Write about the UDP header structure.

19. A New company requires 100 separate subnetworks and 500 usable host addresses per subnet. It purchases a Class B network address. Give the different subnet masks for the above requirements.

20. With an example, explain the error detection method using parity checks.

21. Sketch a neat diagram to explain the concept of encapsulation in Internet Protocol stack.

22. What are the various HTTP response messages?
23. Suppose an application generates chunks of 40 bytes of data every 20 ms and each chunk gets encapsulated in a TCP segment and then an IP datagram. What percentage of each datagram will be overhead, and what percentage will be application data?
24. Describe the three phases in a virtual circuit connection.
25. Consider a 4 bit generator G=1001, and data D=101110. What is the value of R during the calculation of CRC?
26. What is the essential difference between message switching and packet switching?
27. Discuss the various channel partitioning (multiplexing) mechanisms used to access the channel.
28. A network on the Internet has a subnet mask of 255.255.240.0. What is the maximum number of hosts it can handle?
29. Explain some of the services provided by the transport layer to the network layer.
30. Compare and contrast the protocols used in an electronic mail.
31. State the reasons for using layered protocols.
32. Sketch the Manchester encoding for the bit stream: 0001110101.
33. Are there any circumstances when connection-oriented service will deliver packets out of order? Explain.
34. What are the flags used in the TCP header? What are they used for?
35. Write short notes on DNS.
36. Differentiate between NAP and NOP.
37. How does the FTP move the files between local and remote file systems?
38. List out the methods used to avoid congestion in transport layer.
39. Draw the router architecture.
40. What is switch forwarding and filtering?.What is a packet switching network?
41. Write short notes on FTP commands and replies.
42. What is UDP checksum?

43. Define Routing and routing algorithms.
44. What is CRC? Give an example.
45. What is a circuit switching network?
46. Define web caching.
47. What is three-way handshake?
48. What is meant by DHCP?
49. What is the goal of fault management?
50. List the two different services provided by Internet.
51. Brief on the HTTP request-response behaviour.
52. What is the relationship between Transport and Network layers?
53. Write the link state routing algorithm.
54. Differentiate between half duplex and full duplex connection
55. Mention the four sources of delay.
56. Give the general format of http messages.
57. When does TCP trigger packet retransmission?
58. What is IP tunneling?
59. Write short notes on Slotted Aloha.
60. Discuss in detail about the twisted Pair Media.
61. List out the error detection and error correction techniques.
62. What is protocol data unit?
63. What are the duties of the transport layer?
64. Write a short note on the functions of HTTP.
65. Compare connection oriented service and connectionless service.
66. Why do HTTP run on top of TCP rather than UDP?
67. Draw the structure of TCP segment.
68. Briefly explain the various services that could be provided to a flow of packets between a given source and destination.
69. Consider 4 bit generator, G=1001, and D has the value 101110. What is the value of R?

70. Differentiate circuit, packet and message switching.
71. Draw a diagram for HTTP request-response behavior.
72. How to measure the performance of a TCP connection?
73. Give the ranges of IP address for each class.
74. Draw a network architecture with its principal components.
75. Mention the various parameters used for the comparison of physical media.
76. Discuss the components of E-mail briefly.
77. List the design issues of transport layer.
78. Write short note on datagram routing.
79. How is logical ring maintained in IEEE 802.4?
80. What is circuit switching?
81. What is web caching?
82. Give the UDP Segment structure.
83. What is a datagram network?
84. What is half duplex and full duplex transmission?
85. Define Virtual Circuit Networks.
86. Discuss the three main division of the domain name space.
87. The transport layer creates the connection between source and destination. What are the three events involved in the connection?
88. How do the routers get the information about neighbor?
89. Write short notes on error correction.
90. Write short notes on the Client-Server model.
91. What services might a network application need from a transport protocol?
92. What is meant by well-known port numbers? Which port numbers are used for HTTP and FTP?
93. Write short notes on the components of a router.
94. Write about the possible services that can be offered by a link-layer protocol.

95. State the mechanism of transit ISPs.

96. Compare and contrast the features of IMAP and POP3 in e-mail applications.

97. Name and brief the function of various flags present in TCP header.

98. Mention any three special cases of IP addresses and their roles in networking.

99. Devise a pseudo code to list the steps involved in checksum.

PART – C Questions

1. a. Explain the TCP/IP reference model architecture

   b. Compare TCP/IP with OSI model

2. a. Compare Circuit switched and packet switched Network.

   b. Write a note on Fiber CablE.

3. a. Explain in detail the sliding window protocol.
   b. What is the need for Manchester encoding? Write down its limitations.

4. Explain the Ethernet Mac sub layer Protocol in detail.

5. Explain in detail the leaky bucket algorithm & Token bucket algorithm.

6. a. Explain in detail the general principles of congestion control.

   b. Write the Congestion Prevention Policies.

7. Explain the crash recovery and multiplexing system in transport protocols.

8. Explain connection establishment in Transport Protocol

9. Give the architectural overview of World Wide Web

10. a. Explain SMTP.

    b. Explain the five new message headers defined by MIME.

11. Draw neat sketch of OSI / TCP/ IP reference model and list out their various functions.

12. Explain any two guided and one unguided transmission media.

13. A bit stream 10011101 is transmitted using the standard CRC method described in the text. The generator polynomial is $x^3 + 1$. Show the actual bit string transmitted

suppose the third bit from the left is inverted during transmission. Show that this error is detected at the receivers end.

14. Explain following multiple Access method.

    a. ALOHA b. CSMA / CD.

15. Explain the concept of distance vector routing.

16. Explain the concept of classful IP addresses and subnet masking in network layer.

17. What are the services the transport layer provides? Discuss each in detail with the suitable example.

18. Explain various fields in TCP header and UDP header with neat diagram.

19. Draw the OSI reference model and explain what does each layer do?

20. a. Write about the guided transmission magnetic media and twisted pair cable
    b. Compare fiber optics and copper wire

21. Explain in detail about High Level Data Link Control Protocol.

22. a. Write about 802.11 data frame structure.

    b. Explain in detail about the services provided by wireless LAN

23. a. Summarize the top ten principles to be considered for designing network layer in the Internet.

    b. Write about the five categories of classful IP addressing format.

24. Write in detail about the Interior gateway routing protocol OSPF.

25. Explain the addressing system of transport protocol.

26. Explain the system design for better network performance.

27. a. Write about the architecture and services of e-mail

    b. Write a note on HTML.

28. Write about audio compression in detail.

29. Explain the DNS in terms of Name space, Resource Record and Name server.

30. Explain the architecture of W.W.W as an client / server application.

31. Detail about OSI layered architecture.

32. Explain about the delay and loss in Packet-Switched Networks.

33. a. Give a Brief account on Application Architectures.

b. Explain HTTP specifically and also give its working with respect to the following scenario. –

"Consider a HTTP client that wants to retrieve a web document at a given URL. The IP address of the HTTP Server is initially unknown"What Transport and application layer protocols are used in the Scenario?

34. a. What services does an application need?
b. Write about Web based E-Mail application and its related protocols.

35. a. Consider the following three 8-bit bytes : 01010101,01110000,01001100.

i. What's the 1's complement of the sum of these 8-bit bytes?

ii. Why is it that UDP takes the 1's complement of the sum, why not just use the sum?

iii. With 1's complement scheme, how does the receiver detect errors?

iv. Is it possible that a 1-bit error will go undetected?

v. How about a 2-bit error?

b. Define the following

i. Round-trip time

ii. MTU

iii. Piggybacking

36. a. Suppose Host A sends two TCP Segments back to back to Host B over a TCP Connection. The First segment has sequence number 90 and the second has the sequence number 110.

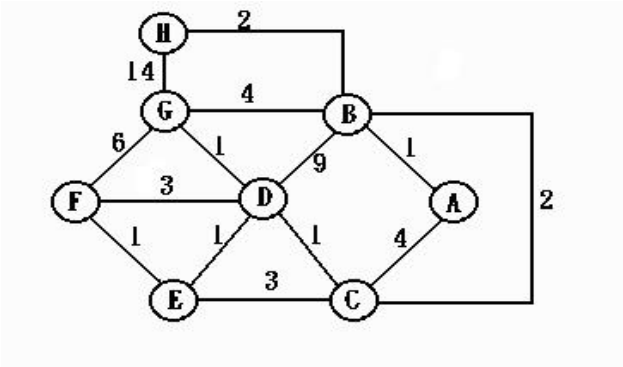
i. How much data is in the first segment?

ii. Suppose that the first segment is lost but the second segment arrives at B. In the acknowledgement that Host B send to Host A, what will be the acknowledgement number?

b. Describe why an application developer might choose to run an application over UDP rather than TCP.

c. Draw the TCP header diagram.

37. a. Compare Virtual Circuits and Data grams networks.
b. Using Link state routing algorithm find the best path for B as root node.



38. a. What is inside the router? Explain.

b. Explain Datagram networks.

39. a. Give an example to show that two-dimensional parity checks can correct an detect a single bit error and that a double bit error can be detected, but not b corrected.

b. Brief about the five areas of network management.

40. a. Explain the Infrastructure of network management.
b. Write about the possible services offered by Data link layer.

41 a. Consider two hosts A and B which are separated by 10,000 kilometers and ar connected by a direct link of 1Mbps. The propagation speed over the link is 2.5 10^8 m/s.

i. Calculate the bandwidth-delay product.

ii. Consider sending a file of 400,000 bits from Host A to B. Suppose the file sent continuously, how long does it take to send the file?

iii. What is the width (in metres) of a bit in the link?

b. Differentiate connection oriented service and connectionless service.

42. a. Write short notes on any two access networks.

b. Compare and contrast circuit switching and packet switching.

43. a. Describe the working of the protocol used in resolving domain names to I addresses.

b. What is a proxy server?

44. a. Explain the protocol used between Mail Transfer Agents.
b. Write short notes on FTP file transfer.

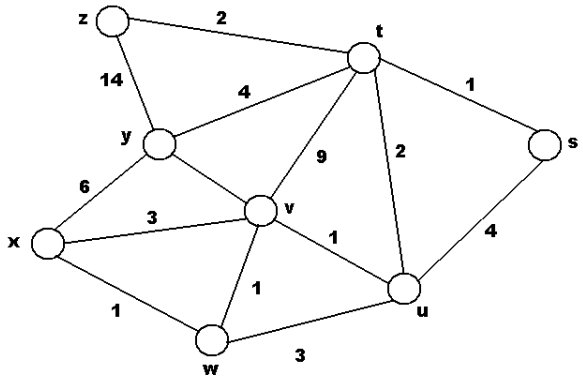
45. Elucidate congestion control in TCP.

46. a. Draw the TCP header structure.

b. Write about TCP connection management in detail.

c. Consider the following three 16-bit bytes: 01100110 01100000, 0101010 01010101, 10001111 00001100. Calculate the UDP checksum.

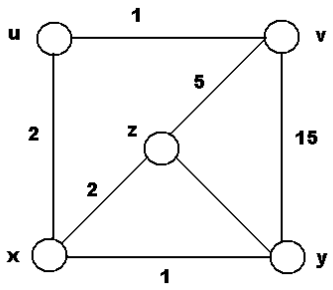
47. a. With the indicated link cost, use Dijkstra's shortest path algorithm to comput the shortest path from x to all network nodes.



b. Compare Link State and Distance Vector routing algorithms

48. a. Explain what is inside a router.

b. Consider the network shown below and assume that each node initially know the cost to each of its neighbours. Consider the distance vector algorithm an show the distance table entries at node z for two steps.



49. a. What are the services provided by the Link Layer?
b. Define the following terms:

    i. Managed device

    ii. Management Agent

    iii. MIB

    iv. Network management protocol

50. a. Describe how end systems are attaining the MAC addresses of other machine in the network.

    b. Write short notes on Network Management

51. Explain the functions of various layers of OSI model.

52. What are the various transmission media available? Explain the various standards of the guided media.

53. What is the remainder obtained by dividing x^7+x^5+1 by the generator polynomial x^3+1?

54. Consider a 1 km 10 Mbps channel. What would be the utilization of this channe when 100 nodes are connected in an Ethernet configuration? If the channel converted to a ring, running token ring, what would be the utilization of th channel? Assume fixed frame size of 1024 bits in both cases.

55. Discuss in detail about the routing algorithms.

56. Illustrate fragmentation in internetworking with an example.

57. Trace the TCP finite state machine transitions for two sites that execute a passive and an active open and step through the three-way handshake.

58. Under what conditions of delay, bandwidth, load and packet loss will TCP transm significant volumes of data unnecessarily? Discuss.

59. What is the role of the local name server and the authoritative name server in DNS? What is the resource records maintained in each of them?

60. Write short notes on

    a. MBone b. I-Mode

61. State the functionality of Network adaptors. Explain how the bytes of a frame are transferred between the adaptor and the host memory. Explain the concept of Memory Bottleneck in Network adaptors.

62. Discuss in detail about the wireless transmission methods.

63. Compare the capacity allocation schemes of 802.5 token ring and FDDI. What are the relative pros and cons?

64. An 8 bit byte with binary value 10101111 is to be encoded using an even-parity Hamming code. What is the binary value after encoding?

65. Consider an application that transmits data at a steady rate of 100 kbps whenever it transmits. But it transmits only 10 percent of the time. If a 1 Mbps link is shared by multiple such applications would a circuit switched or packet switched network be appropriate for this scenario? How many such applications can be supported in each case? Explain. Describe a way to reassemble IP fragments at the destination.

66. Discuss in detail about routing algorithms.

67. Consider transferring an enormous file of L bytes from host A to host B. Assume an MSS of 1640 bytes. What is the maximum value of L such that the TCP sequence numbers are not exhausted? For this L, how long does it take to transmit a file over a 10 Mbps link? Assume that a total of 66 bytes of transport, network and data-link header are added to each segment, and ignore flow and congestion control.

68. Assume that TCP is sending segments using a maximum window size of 64 kbytes, on a channel that has infinite bandwidth, and an average round-trip time of 20 ns. What is the maximum throughput? How does it change if the round-trip time is 40 ms?

69. Discuss in detail about the operation of Email.

70. Write short notes on

    a. Voice over IP b. Audio Compression

71. Discuss about the network core with its switching systems.

72. What are the five layers in the protocol layer? Explain its encapsulation.

73. a. Give the structure of HTTP request response behavior model and explain.
b. Draw and explain the HTTP message format in detail.

74. Briefly explain the high level view of the internet mail system and its key components.

75. a. Describe about the pipelined reliable data transfer protocol.
b. Explain the concept of Go Back N protocol

76. Draw and explain the TCP segment structure over a reliable data transfer service and explain how to calculate the round trip time estimation.

77. Discuss in detail about the Virtual circuits and datagram network.

78. Explain the IPv4 datagram format and addressing structure in detail.

79. Describe the syntax and function of the link layer address.

80. Briefly discuss the subsystems of major components in the internet standard management framework.

81. a. Discuss about the connectionless and connection oriented services.
b. Briefly explain about queuing delay.

82. a. Explain about physical media in detail.
b. Write short notes on multiplexing in circuit switched networks.

83. a. Explain about network application architecture.

b. Distinguish HTTP and SMTP.

84. a. Explain Mail Access Protocol in detail.

b. Explain semantics of various fields in DNS message.

85. a. With neat diagram explain Go-Back-N protocol.
b. What is flow control? How is it implemented in TCP?

86. Discuss in detail about the principles of congestion control.

87. Explain about virtual circuit and datagram networks in detail

88. Discuss in detail about IPV6.

89. a. What are the services provided by the link layer protocol?

b. Explain the principal components of network management architectures.

90. a. Explain DHCP in detail.

    b. Write short notes on MAC addresses.

91. a. Explain in detail about ISPs and internet backbones.

    b. Write a short note on transmission and propagation delay.

92. a. Discuss about Packet Switched Networks in detail.

    b. What are the five layers in the internet protocol stack? Explain its responsibilities.

93. a. What are the services provided by the internet transport protocols?
    b. Briefly explain about the File Transfer Protocol.

94. a. Explain the two types of HTTP Message.

    b. Write short notes on Cookies.

95. Describe about Multiplexing and Demultiplexing in detail.

96. With a neat diagram, explain the selective repeat protocol in detail.

97. Explain about IPv4 addressing in detail.

98. Discuss in detail about the Distance-Vector Routing Algorithm.

99. What is Internet standard management framework? Explain.

100. a.Discuss in detail about the error detection and correction techniques.
     b. Write short notes on Ethernet frame structure.

101. Discuss the different types of switching techniques available for data transmission.

102. Explain the Internet Protocol Stack and the structure of protocol data unit in detail.

103. Discuss about File Transfer Protocol in detail.

104. Write a socket program to implement echo application. Use either stream or datagram socket.

105. Explain the principle of connection oriented data transfer in detail.

106. Define Congestion control. Explain different approaches are available for Congestion control.

107. Explain the Distance Vector Routing algorithm in detail. Illustrate its working with example.

108. What is meant by IP addressing? Explain different addressing scheme in detail. Draw and explain the IPv4 datagram format.

109. Explain about the channel partitioning protocols in detail.

110. What is Ethernet? Explain the Ethernet frame structure in detail.

111. Give a detailed account on access networks and physical medium technologies.

112. Consider sending voice from Host A to Host B over a packet-switched network (e.g., Internet phone). Host A converts on-the-fly analog voice to a digital 64 kbps bit stream. Host A then groups the bits into 48-byte packets. There is one link between host A and B; its transmission rate is 1 Mbps and its propagation delay is 2 msec. As soon as Host A gathers a packet, it sends it to Host B. As soon as Host B receives an entire packet, it converts the packet's bits to an analog signal. How much time elapses from when a bit is created (from the original analog signal at A) until a bit is decoded (as part of the analog signal at B)?

113. Give a brief account on services provided by DNS. Draw the DNS message format and write down the semantics of various fields in a DNS message.

114. a. From a user's perspective, what is the difference between the download-and-delete mode and the download-and-keep mode in POP3?

b. Suppose within your web browser you click on a link to obtain a web page. Suppose that the IP address for the associated URL is not cached in your local host, so that a DNS look up is necessary to obtain the IP address. Suppose that n DNS servers are visited before your host receives the IP address from DNS; the successive visits incur a RTT of RTT1, .., RTTn. Further suppose that web page associated with the link contains exactly one object, a small amount of HTML text. Let RTT0 denote the RTT between the local host and the server containing the object. Assuming zero transmission time of the object, how much time elapses from when the client clicks on the link until the client receives the object.

115. a. Suppose A sends two TCP segments back-to-back to B. The first segment has sequence number 90; the second has sequence number 110. How much data is in the first segment? Suppose that the first segment is lost, but the second segment arrives at B. In the acknowledgement that B sends to A, what will be the acknowledgment number?

b. Draw and explain the FSM of rdt3.0.

116. Give a detailed account on TCP congestion control mechanisms

117. Discuss in detail about IPV4 and IPV6 addressing.

118. Give a brief account on classification of routing algorithms. Write and explain Bellman-Ford algorithm with an illustrative example.

119. Suppose nodes A and B are on the same 10 Mbps Ethernet segment, and the propagation delay between the two nodes is 225-bit times. Suppose node A begins transmitting a frame, and before it finishes station, B begins transmitting a frame. Can A finish transmitting before it detects that B has transmitted? Why or why not? If the answer is yes, then A incorrectly believes that its frame was successfully transmitted without a collision.

120. Give a detailed account on architecture of network management system.

121. Explain about the ISO/OSI reference model.

122. Explain in detail about the Public Switched Telephone Network.

123. Explain the generic operation of Go-Back-N protocol in data link layer.

124. Discuss in detail about the selective-repeat protocol.

125. Explain in detail about the Distance Vector Routing.

126. Explain in detail about the Link State Routing.

127. List out the services of transport layer and explain in detail about all services.

128. What is meant by User Datagram Protocol? Explain in detail about the functions of User Datagram Protocol.

129. Explain in detail about the Domain Name System (DNS).

130. Discuss in detail about the Electronic Mail.

131. Explain the various layers of internet protocol stack.

132. Discuss the various physical media that are employed in a network.

133. Explain the persistent and non persistent connection of hypertext transfer protocol.

134. Describe the working principle of DNS.

135. Explain the operation of Go-Back-N(GBN) protocol with suitable diagrams.

136. Discuss the connection management of Transmission control Protocol (TCP).

137. Write and explain the distance vector routing algorithm with suitable example.

138. Explain the IPV4 datagram format and also explain the need for IP datagram fragmentation.

139. a. Explain the operation of Slotted ALOHA protocol.

b. Explain the four steps carried out for a newly arriving host in DHCP.

140. Describe the architecture of network management with neat diagram.

141. Explain in detail about internet protocol stack.

142. Discuss in detail about queuing delay and packet loss.

143. Compare SMTP with HTTP.

144. What are mail access protocols? Discuss about two popular mail access protocols.

145. Show the structure of TCP segment and explain each field.

146. a. Many applications are better suited for UDP –Why?

b. Write a note on reliable data transfer.

147. Explain in detail about Virtual circuit and their phases.

148. Briefly discuss about Hierarchical Routing in inter and intra Autonomous System.

149. Discuss in detail about the Link layer services.

150. Explain in detail about CSMA/CD.

151. a. Describe the network architecture in detail.

b. Explain the concepts of access networks briefly.

152. a. Compare point -to-point channels with broadcast channels along with suitable examples?

b. A collection of five routers is to be collected in a point-to-point subnet. Between each pair of routers, the designers may put a high speed line, a medium- speed line, a low-speed line, or no line. If it takes 100ms of computer time to generate and inspect each topology, how long will it take to inspect all of them to find the one that best matches the expected load?

153. What is DNS? What is its use?How does DNS work? Explain with neat sketch.

154. What is meant by browser? Discuss the architecture of browser in detail.

155. Explain the state transition diagram of TCP with a neat diagram.

156. What is meant by congestion control? Explain the various techniques available for avoiding congestion.

157. What are the disadvantages of distance vector routing? Describe the link state algorithm with example.

158. What is IP address? What is the use of it? Discuss the class full and class less IP address in detail

159. Describe the various methods of error detection techniques with example.

160. Describe the architecture of SNMP in detail.

161. Give a detailed explanation of the different types of physical media responsible for establishing a network connection.

162. Explain all the layers of the protocol stack in detail

163. Give a detailed overview of how DNS works.

164. Explain Socket programming in TCP with a Client / Server Application in Java as an example.

165. Discuss the functioning of a reliable data transfer protocol with appropriate diagrams.

166. Explain the Congestion control mechanism in detail.

167. Discuss the following components of a Router:

    a. Input ports b. Switching fabric

    c. Output ports d. Routing Processor

168. Explain the Distance Vector Routing algorithm with an example.

169. Explain all the Error-Detection and Correction techniques in detail.

170. Describe the Internet-Standard Management Framework.

171. Explain the following techniques:

    a. Circuit Switching b. Packet Switching c. Message Switching

171. Explain the protocol layers and their services.

172. Discuss the functions of Electronic mail in the internet.

173. Explain WWW in detail.

174. Write down in detail the duties of transport layer.

175. Explain in detail about TCP.

176. Define routing. Explain distance vector routing and link state routing.

177. Explain the two approaches of packet switching techniques.

178. What is error detection? Elucidate the various error correction techniques.

179. Discuss about Ethernet.

180. Explain in detail about the following:

a. Access Networks Technology.

b. Physical Transmission Media.

181. Explain in detail about the Protocol Layers and their Services.

182. a. Discuss in detail about the Services provided by the Internet Transport Protocols.
b. Briefly discuss about the Hypertext Transfer Protocol (HTTP).

183. Discuss in detail about the following:

a. Electronic Mail in the Internet.

b. Socket Programming with TCP

184. Write short note on the following:

a. UDP Segment Structure.

b. Go-Back-N (GBN) Protocol.

c. Selective Repeat (SR) Protocol.

185. Briefly discuss about the following:

a. TCP Segment Structure.

b. ATM ABR Congestion Control.

186. a. Discuss in detail about the Virtual Circuit.

b. Explain in detail about the key fields of the IPv4 Datagram.

187. a. Discuss in detail about the Open Shortest Path First routing protocol.

b. Explain in detail about the general structure of the IPv6 Packet.

188. Briefly discuss about the different Error Detection Techniques.

189. Write short note on the following:

a. Ethernet Frame Structure

b. Network Management.

190. Discuss the list of responsibilities of various layers present in OSI reference model.

191. State the various guided and un-guided medium and their roles in establishing ar internetwork.

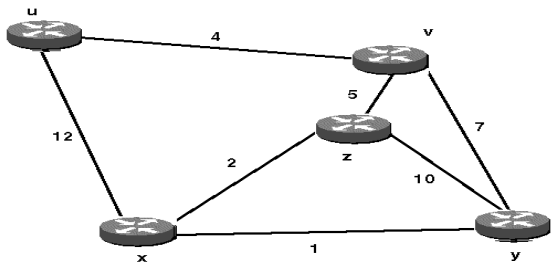
192. Explain about the key role of WWW and URL in Internet with suitable tracing.

193. Mention and explain various commands and responses employed in an FTP session.

194. Explain any three open loop and closed loop congestion control techniques adopted in TCP.

195. Illustrate the working nature of TCP queue management in detail.

196. Explain how routing tables are constructed using distance vector algorithm wit respect to the given graph of the network.



197. a. Explain the dissimilarities between Packet Switching and Circuit Switching.
b. Discuss the IP address classification with suitable example.

198. Narrate the significance of various fields present in Ethernet frame.

199. Show how Internet standard management framework has been established through SNMP.