Short Questions

1. What are the two main components of a network?
2. Name two popular network reference models.
3. What was ARPANET?
4. What does OSI stand for in networking?
5. What is the main purpose of the Physical Layer in networking?
6. Name three types of guided transmission media.
7. What is an example of wireless transmission?
8. What is a twisted pair cable?
9. What is the use of coaxial cable in networking?
10. What advantages does fiber optics offer over other transmission media?
11. What is the primary function of network hardware?
12. Can you give an example of network software?
13. What layers does the TCP/IP model have?
14. What role did ARPANET play in the development of the Internet?
15. In what year was ARPANET developed?
16. How does fiber optics transmit data?
17. What are the advantages of using twisted pair cables?
18. What is a major disadvantage of coaxial cable?
19. Name one use of wireless transmission in networks.
20. What does TCP/IP stand for?

21. How many layers are there in the OSI model?
22. Can you name the top layer of the OSI model?
23. What is the main difference between the OSI model and the TCP/IP model?
24. What is the significance of the Internet in networking?
25. How does wireless transmission differ from guided transmission?
26. What is the main challenge in wireless transmission?
27. Why is fiber optics considered superior for long-distance communication?
28. What is the function of the Application Layer in the OSI model?
29. In the OSI model, which layer is responsible for error-free, end-to-end delivery of data?
30. What layer of the TCP/IP model corresponds to the first three layers of the OSI model?
31. What is the role of the Internet Layer in the TCP/IP model?
32. How does the Physical Layer transmit data?
33. What is the main purpose of network software?
34. What type of network did ARPANET evolve into?
35. What is the difference between analog and digital transmission?
36. Why is twisted pair cable commonly used in local area networks?
37. Can fiber optics be used for internet connectivity?
38. What is the disadvantage of wireless transmission?
39. What is the role of the Transport Layer in the TCP/IP model?
40. How do coaxial cables reduce interference?
41. What type of data can fiber optic cables carry?

42. What is the role of the Network Layer in the OSI model?
43. In the context of networking, what does the term 'protocol' mean?
44. How does the Application Layer differ in the OSI and TCP/IP models?
45. What is the importance of the Network Interface Layer in the TCP/IP model?
46. Can you explain 'packet switching' in the context of ARPANET?
47. Why is error checking important in the Transport Layer?
48. What are the benefits of using fiber optics in data centers?
49. How do network protocols contribute to the functioning of the Internet?
50. What is a key feature of the Internet Layer in the TCP/IP model?
51. What are the key design issues in the Data Link Layer?
52. What is framing in the context of the Data Link Layer?
53. How does error detection work in the Data Link Layer?
54. What is the purpose of error correction in the Data Link Layer?
55. What is a simplex protocol in the context of Data Link Layer?
56. Describe a simplex stop-and-wait protocol for an error-free channel.
57. Explain a simplex stop-and-wait protocol for a noisy channel.
58. What is a one-bit sliding window protocol?
59. How does the Go-Back-N protocol work in the Data Link Layer?
60. Describe the Selective Repeat protocol in the Data Link Layer.
61. What are some example data link protocols?
62. What is the channel allocation problem in the Medium Access sublayer?
63. Explain the basic concept of ALOHA in multiple access protocols.

64. What is Carrier Sense Multiple Access (CSMA)?
65. How do collision-free protocols work in the Medium Access sublayer?
66. What are the characteristics of Wireless LANs in the context of the Data Link Layer?
67. What is Data Link Layer switching?
68. Describe the function of Automatic Repeat Request (ARQ) in error correction.
69. What is the difference between pure ALOHA and slotted ALOHA?
70. Explain the concept of token passing in collision-free protocols.
71. How does the Go-Back-N protocol handle lost frames?
72. What role does the Medium Access Control (MAC) sublayer play in networking?
73. Describe the selective acknowledgment feature in the Selective Repeat protocol.
74. What are collision-free protocols and give an example.
75. How does the Physical Layer interact with the Data Link Layer in a network?
76. What is the purpose of framing in the Data Link Layer?
77. How does parity checking work for error detection?
78. What is the difference between error detection and error correction?
79. Explain the simplex protocol in data communication.
80. What is the principle of a stop-and-wait protocol?
81. How does a sliding window protocol improve efficiency in data transmission?
82. Describe the one-bit sliding window protocol.
83. What is the Go-Back-N ARQ protocol?
84. Explain the Selective Repeat ARQ protocol.
85. What is the role of the Medium Access Control (MAC) sublayer?

86. How does ALOHA work as a multiple access protocol?
87. What is Carrier Sense Multiple Access with Collision Detection (CSMA/CD)?
88. Define collision-free protocols in the context of network communication.
89. What are the characteristics of Wireless LANs relevant to the Data Link Layer?
90. Describe the basic operation of a data link layer switch.
91. What is the significance of frame synchronization in data communication?
92. How do checksums provide error detection?
93. What are the advantages of using a Go-Back-N protocol?
94. How does the Selective Repeat protocol differ from Go-Back-N in handling errors?
95. Explain the function of the Logical Link Control (LLC) sublayer in the Data Link Layer.
96. Describe the pure ALOHA protocol's approach to handling data collisions.
97. What is the purpose of Carrier Sense in CSMA protocols?
98. How do wireless LANs handle security at the Data Link Layer?
99. What is the role of flow control in the Data Link Layer?
100. How does a data link layer switch differ from a hub in network communication?
101. What are the key design issues in the Network Layer?
102. Explain the concept of shortest path routing.
103. What is flooding in the context of routing algorithms?
104. How does hierarchical routing differ from flat routing?
105. Describe the purpose of broadcast in networking.
106. What is multicast in networking?

107. How does distance vector routing work?
108. What is a routing table in networking?
109. Explain the concept of forwarding in the Network Layer.
110. What is the primary goal of a routing algorithm?
111. How does static routing differ from dynamic routing?
112. Why is hierarchical routing important in large networks?
113. What is the advantage of using multicast over unicast for group communication?
114. How does distance vector routing handle network changes?
115. Explain the concept of a routing metric.
116. What is the primary disadvantage of flooding as a routing algorithm?
117. How does a router use a routing table to make forwarding decisions?
118. What is the role of the Network Layer in the OSI model?
119. What are some common routing protocols used in distance vector routing?
120. How does a router determine the cost of a route in a routing table?
121. What is the main advantage of multicast over unicast for streaming media?
122. What is the primary difference between distance vector routing and link-state routing?
123. How does broadcast routing affect network scalability?
124. What is the purpose of the Network Layer in internet architecture?
125. How does multicast routing differ from unicast and broadcast routing?