Short Questions

1. What is congestion in a network and why does it occur?
2. Name and describe two basic approaches to congestion control.
3. What is Quality of Service (QoS) in networking and why is it important?
4. Explain the concept of 'Internetworking'.
5. Describe the role of the Network Layer in the Internet.
6. Name a widely used congestion control algorithm and describe how it works.
7. How does packet loss signify congestion and how is it handled?
8. What is the role of routers in internetworking and how do they function?
9. Define 'latency' in the context of QoS and discuss its impact on network performance.
10. What is an autonomous system in the context of the Internet, and how does it function?
11. Describe 'load shedding' as a congestion control technique and its effectiveness.
12. Differentiate between flow control and congestion control in a network.
13. Explain 'traffic shaping' in the context of QoS and its significance.
14. How does a router determine the best path for data packets and what factors are considered?
15. Describe the Leaky Bucket algorithm in congestion control and its impact on network traffic.
16. Explain the Token Bucket algorithm used in QoS and its advantages.
17. What does 'best effort delivery' mean in networking, and how does it impact data transmission?
18. Describe the concept of "window-based" congestion control and its role in TCP.
19. Explain how Quality of Service is maintained in networks with diverse traffic types.

20. What are the challenges faced in Internetworking and how are they addressed?
21. Discuss the significance of the Border Gateway Protocol (BGP) in the Internet.
22. Explain the concept of jitter in networking and its impact on Quality of Service.
23. Describe the concept of "Round-Trip Time" (RTT) and its relevance in network communication.
24. Discuss the role of ICMP (Internet Control Message Protocol) in the Network Layer.
25. What is MPLS (Multiprotocol Label Switching) and its role in enhancing network performance?
26. What is the primary role of the transport layer in computer networks?
27. Describe the concept of end-to-end communication in the context of the transport layer.
28. Explain the significance of flow control in transport services.
29. How does the transport layer manage congestion control?
30. What is the difference between connection-oriented and connectionless services in the transport layer?
31. Discuss the importance of error handling in transport layer services.
32. Explain the role of segmentation and reassembly in the transport layer.
33. How does multiplexing work in the context of transport services?
34. What are the typical elements found in a transport layer protocol data unit (PDU)?
35. Describe how reliability is achieved in transport layer services.
36. What is the primary purpose of segmentation in transport protocols?
37. How do transport protocols use sequence numbers?
38. Explain the role of a checksum in transport protocols.
39. What are protocol data units (PDUs) in the context of transport protocols?

40. How do transport protocols handle error correction?
41. Describe the process of flow control in transport protocols.
42. What is the significance of port numbers in transport protocols?
43. Explain the concept of connection establishment in transport protocols.
44. What is the role of window scaling in transport protocols?
45. How do transport protocols manage congestion in a network?
46. Define connection management in the context of transport layer protocols.
47. What is the significance of the three-way handshake process in TCP?
48. How is connection termination handled in TCP?
49. What challenges does connection management address in transport layer protocols?
50. Discuss the role of SYN and ACK flags in TCP connection management.
51. Explain the concept of 'state' in connection management.
52. Describe the purpose of sequence numbers in TCP connection management.
53. What is a 'half-open' connection and how is it handled in TCP?
54. How does TCP handle lost connection requests or responses?
55. Discuss the significance of the FIN flag in TCP.
56. What is the Transmission Control Protocol (TCP) and its primary purpose?
57. How does TCP achieve reliable data transmission?
58. Describe the TCP three-way handshake process.
59. Explain TCP's flow control mechanism.
60. What is TCP congestion control and how does it work?
61. What are TCP segments and how are they structured?

62. Discuss the importance of the TCP window size and its adjustment.
63. How does TCP handle lost or corrupted packets?
64. What is the significance of TCP's use of port numbers?
65. Explain the concept of TCP's "full-duplex" communication.
66. What is the User Datagram Protocol (UDP) and its main purpose?
67. How does UDP differ from TCP in terms of connection management?
68. What are the characteristics of UDP's reliability and data integrity?
69. Describe the structure of a UDP datagram.
70. In what scenarios is UDP preferred over TCP?
71. How does UDP handle congestion control and flow control?
72. What is the role of port numbers in UDP communication?
73. Explain how UDP offers efficiency in data transmission.
74. Discuss the limitations of UDP.
75. How do applications ensure reliability when using UDP?
76. What is the Domain Name System (DNS)?
77. How does DNS resolution work?
78. What are the different types of DNS servers?
79. Explain the purpose of a DNS zone file.
80. What is a DNS query and its types?
81. Describe what a DNS record is and its significance.
82. What is the role of an A record in DNS?
83. Explain the difference between a CNAME record and an A record.

84. What is DNS caching and why is it important?
85. How does DNS contribute to the security of internet communications?
86. What is SNMP and what is its primary use?
87. How does SNMP work?
88. What are SNMP agents?
89. Describe the role of an SNMP manager.
90. What are MIBs in SNMP?
91. What are SNMP Traps?
92. Explain the different versions of SNMP.
93. How does SNMP achieve network device configuration?
94. What is an SNMP community string?
95. Discuss the security aspects of SNMP.
96. What is electronic mail (email)?
97. How does an email system work?
98. What are SMTP, POP3, and IMAP in the context of email?
99. What is an email address?
100. Explain the role of an email server.
101. What is the difference between webmail and email clients?
102. How is email encryption used for security?
103. What are email attachments?
104. Describe the use of CC and BCC in emails.
105. What are spam emails and how are they handled?

106. What is the World Wide Web (WWW)?
107. How do web browsers work?
108. What is HTML?
109. Explain the concept of hyperlinks.
110. What is HTTP?
111. Describe the role of web servers.
112. What is the difference between a static and dynamic web page?
113. How do cookies work on the web?
114. What is CSS and its purpose in web design?
115. Explain the concept of responsive web design.
116. What is HTTP (Hypertext Transfer Protocol)?
117. How does HTTP work?
118. What are HTTP methods, and what are some common examples?
119. Describe what streaming audio and video mean.
120. What is a URL (Uniform Resource Locator)?
121. How does HTTPS enhance web security?
122. What is live streaming, and how does it differ from traditional streaming?
123. Explain the role of media streaming protocols.
124. What are adaptive bitrate streaming and its benefits?
125. What are the challenges of streaming audio and video?