

# MULTIPLE CHOICE QUESTIONS IN DATA COMMUNICATIONS AND NETWORKING

## A Complete Chapter Quiz

### Process-to-Process Delivery: UDP, TCP, and SCTP

Compilation of all the quizzes (MCQs) for each and every chapters in the book of Data Communications and Networking 4th Edition by Behrouz A. Forouzan.

1. Urgent data requires the urgent pointer field as well as the URG bit in the \_\_\_\_\_ field.

- A) control
- B) offset
- C) sequence number
- D) none of the above

2. To accomplish flow control, TCP uses a \_\_\_\_\_ window protocol.

- A) limited-size
- B) sliding
- C) fixed-size
- D) none of the above

3. UDP and TCP are both \_\_\_\_\_ layer protocols.

- A) data link
- B) network
- C) transport
- D) none of the above

4. In TCP, one end can stop sending data while still receiving data. This is called a \_\_\_\_\_.

- A) half-close
- B) half-open
- C) one-way termination
- D) none of the above

5. In SCTP, the acknowledgment number and window size are part of each \_\_\_\_\_.

- A) data chunk
- B) control chunk
- C) a or b
- D) none of the above

6. A connection in SCTP is called an \_\_\_\_\_.

- A) negotiation
- B) association
- C) transmission

D) none of the above

7. An ACK segment, if carrying no data, consumes \_\_\_\_\_ sequence number(s).

- A) no
- B) one
- C) two
- D) none of the above

8. The association identifier in SCTP is \_\_\_\_\_.

- A) a unique verification tag
- B) a combination of logical and port addresses
- C) either a or b
- D) none of the above

9. In SCTP, a data chunk is numbered using \_\_\_\_\_.

- A) a TSN
- B) an SI
- C) an SSN
- D) none of the above

10. The bytes of data being transferred in each connection are numbered by TCP. The numbering starts with a \_\_\_\_\_.

- A) 0
- B) 1
- C) randomly generated number
- D) none of the above

11. In the sending computer, UDP receives a data unit from the \_\_\_\_\_ layer.

- A) application
- B) transport
- C) IP
- D) none of the above

12. SCTP allows \_\_\_\_\_ service in each association.

- A) single stream

- B) multistream  
 C) double stream  
 D) none of the above
13. TCP is a \_\_\_\_\_ protocol.  
 A) connection-oriented  
 B) connectionless  
 C) both a and b  
 D) none of the above
14. UDP uses \_\_\_\_\_ to handle outgoing user datagrams from multiple processes on one host.  
 A) flow control  
 B) multiplexing  
 C) demultiplexing  
 D) none of the above
15. Because the sending and the receiving processes may not write or read data at the same speed, TCP \_\_\_\_\_.  
 A) speeds up the slower process  
 B) slows down the faster process  
 C) uses buffers  
 D) none of the above
16. SCTP association allows \_\_\_\_\_ for each end.  
 A) only one IP address  
 B) multiple IP addresses  
 C) only two IP address  
 D) none of the above
17. UDP needs the \_\_\_\_\_ address to deliver the user datagram to the correct application process.  
 A) port  
 B) application  
 C) internet  
 D) none of the above
18. In an SCTP packet, control chunks come \_\_\_\_\_ data chunks.

- A) after  
 B) before  
 C) a or b  
 D) none of the above
19. TCP is a(n) \_\_\_\_\_ transport protocol.  
 A) unreliable  
 B) best-effort delivery  
 C) reliable  
 D) none of the above
20. TCP delivers \_\_\_\_\_ out-of-order segments to the process.  
 A) all  
 B) no  
 C) some  
 D) none of the above
21. Multiply the header length field by \_\_\_\_\_ to find the total number of bytes in the TCP header.  
 A) 2  
 B) 4  
 C) 6  
 D) none of the above
22. Which of the following does UDP guarantee?  
 A) flow control  
 B) connection-oriented delivery  
 C) either a or b  
 D) none of the above
23. TCP allows the sending process to deliver data as a \_\_\_\_\_ of bytes and allows the receiving process to obtain data as a \_\_\_\_\_ of bytes.  
 A) message; message  
 B) stream; stream  
 C) block; block  
 D) none of the above

24. To distinguish between different data chunks belonging to the same stream, SCTP uses \_\_\_\_\_.

- A) TSNs
- B) SIs
- C) SSNs
- D) none of the above

25. The ports ranging from 49,152 to 65,535 can be used as temporary or private port numbers. They are called the \_\_\_\_\_ ports.

- A) well-known
- B) registered
- C) dynamic
- D) none of the above

26. UDP does not add anything to the services of IP except for providing \_\_\_\_\_ communication.

- A) node-to-node
- B) process-to-process
- C) host-to-host
- D) none of the above

27. The combination of an IP address and a port number is called a \_\_\_\_\_.

- A) transport address
- B) network address
- C) socket address
- D) none of the above

28. The options field of the TCP header ranges from 0 to \_\_\_\_\_ bytes.

- A) 10
- B) 20
- C) 40
- D) none of the above

29. A port address in UDP is \_\_\_\_\_ bits long.

- A) 8

B) 16

C) 32

D) none of the above

30. The FIN segment consumes \_\_\_\_\_ sequence numbers if it does not carry data.

- A) two
- B) three
- C) no

D) none of the above

31. The inclusion of the checksum in the TCP segment is \_\_\_\_\_.

- A) optional
- B) mandatory

C) \_\_\_\_\_ at the discretion of the application program

D) none of the above

32. The FIN + ACK segment consumes \_\_\_\_\_ sequence number(s) if it does not carry data.

- A) two
- B) three
- C) one

D) none of the above

33. TCP uses \_\_\_\_\_ to check the safe and sound arrival of data.

A) an acknowledgment mechanism

B) out-of-band signaling

C) the services of another protocol

D) none of the above

34. ACK segments consume \_\_\_\_\_ sequence number(s) and \_\_\_\_\_ acknowledged.

- A) no; are not
- B) one; are not
- C) no; are
- D) none of the above

35. In SCTP, acknowledgment numbers are used to acknowledge \_\_\_\_\_.

- A) both data chunks and control chunks
- B) only control chunks
- C) only data chunks
- D) none of the above

36. The source port address on the UDP user datagram header defines \_\_\_\_\_.

- A) the sending computer
- B) the receiving computer
- C) the process running on the sending computer
- D) none of the above

37. \_\_\_\_\_ control regulates the amount of data a source can send before receiving an acknowledgment from the destination.

- A) Error
- B) Flow
- C) Congestion
- D) none of the above

38. To use the services of UDP, we need \_\_\_\_\_ socket addresses.

- A) four
- B) two
- C) three
- D) none of the above

39. The value of the window size is determined by \_\_\_\_\_.

- A) the sender
- B) the receiver
- C) both the sender and receiver
- D) none of the above

40. TCP assigns a sequence number to each segment that is being sent. The sequence number for each segment is

the number of the \_\_\_\_\_ byte carried in that segment.

- A) first
- B) last
- C) middle
- D) none of the above

41. An SCTP packet can carry \_\_\_\_\_.

- A) only one data chunk
- B) several data chunks
- C) no data chunks
- D) none of the above

42. UDP is an acronym for \_\_\_\_\_.

- A) User Delivery Protocol
- B) User Datagram Procedure
- C) User Datagram Protocol
- D) none of the above

43. A SYN + ACK segment cannot carry data; it consumes \_\_\_\_\_ sequence number(s).

- A) no
- B) three
- C) two
- D) none of the above

44. TCP groups a number of bytes together into a packet called a \_\_\_\_\_.

- A) user datagram
- B) segment
- C) datagram
- D) none of the above

45. There is no need for a header length field in SCTP because \_\_\_\_\_.

- A) there are no options in the general header
- B) the size of the header is fixed
- C) both a and b

- D) none of the above
46. Connection establishment in TCP is called \_\_\_\_\_ handshaking.
- A) two-way  
 B) four-way  
 C) one-way  
 D) none of the above
47. UDP packets are encapsulated in \_\_\_\_\_.
- A) an Ethernet frame  
 B) an TCP segment  
 C) an IP datagram  
 D) none of the above
48. The checksum in SCTP is \_\_\_\_\_ bits.
- A) 16  
 B) 32  
 C) 64  
 D) none of the above
49. TCP sliding windows are \_\_\_\_\_ oriented.
- A) packet  
 B) segment  
 C) byte  
 D) none of the above
50. If a segment carries data along with an acknowledgment, this is called \_\_\_\_\_.
- A) backpacking  
 B) piggybacking  
 C) piggypacking  
 D) none of the above
51. If the ACK value is 200, then byte \_\_\_\_\_ has been received successfully.
- A) 199  
 B) 200  
 C) 201

- D) none of the above
52. A TCP segment is encapsulated in \_\_\_\_\_.
- A) an IP datagram  
 B) an Ethernet frame  
 C) a UDP user datagram  
 D) none of the above
53. TCP is a \_\_\_\_\_ protocol.
- A) stream-oriented  
 B) message-oriented  
 C) block-oriented  
 D) none of the above
54. UDP packets are called \_\_\_\_\_.
- A) user datagrams  
 B) segments  
 C) frames  
 D) none of the above
55. In the sending computer, UDP sends a data unit to the \_\_\_\_\_ layer.
- A) application  
 B) transport  
 C) IP  
 D) none of the above
56. In SCTP, control information and data information are carried in \_\_\_\_\_ chunks.
- A) the same chunk  
 B) different chunks  
 C) either a or b  
 D) none of the above
57. TCP has \_\_\_\_\_; SCTP has \_\_\_\_\_.
- A) packets; segments  
 B) segments; packets  
 C) segments; frames  
 D) none of the above

58. One of the responsibilities of the transport layer protocol is to create a \_\_\_\_\_ communication.

- A) host-to-host
- B) process-to-process
- C) node-to-node
- D) none of the above

59. The control information in SCTP is included in the \_\_\_\_\_.

- A) header control field
- B) control chunks
- C) data chunks
- D) none of the above

60. Communication in TCP is \_\_\_\_\_.

- A) simplex
- B) half-duplex
- C) full-duplex
- D) none of the above

61. Stream Control Transmission Protocol (SCTP) is a new \_\_\_\_\_ protocol.

- A) reliable, character-oriented
- B) reliable, message-oriented
- C) unreliable, message-oriented
- D) none of the above

62. To distinguish between different streams, SCTP uses \_\_\_\_\_.

- A) a TSN
- B) an SI
- C) an SSN
- D) none of the above

63. Which of the following functions does UDP perform?

- A) process-to-process communication
- B) host-to-host communication
- C) end-to-end reliable data delivery

D) none of the above

64. IP is responsible for \_\_\_\_\_ communication while TCP is responsible for \_\_\_\_\_ communication.

- A) host-to-host; process-to-process
- B) process-to-process; host-to-host
- C) process-to-process; network-to-network
- D) none of the above

D) none of the above

65. The connection establishment procedure in TCP is susceptible to a serious security problem called the \_\_\_\_\_ attack.

- A) ACK flooding
- B) FIN flooding
- C) SYN flooding
- D) none of the above

66. UDP is called a \_\_\_\_\_ transport protocol.

- A) connectionless, reliable
- B) connection-oriented, unreliable
- C) connectionless, unreliable
- D) none of the above

67. In SCTP, \_\_\_\_\_ can be carried in a packet that carries an INIT chunk.

- A) only data chunks
- B) only control chunks
- C) no other chunk
- D) none of the above

68. UDP packets have a fixed-size header of \_\_\_\_\_ bytes.

- A) 16
- B) 8
- C) 40
- D) none of the above

69. The SYN flooding attack belongs to a group of security attacks known as a \_\_\_\_\_ attack.

- A) denial of service
- B) replay
- C) man-in-the middle
- D) none of the above

70. When the IP layer of a receiving host receives a datagram, \_\_\_\_\_.

- A) delivery is complete
- B) a transport layer protocol takes over
- C) a header is added
- D) none of the above

71. The value of the acknowledgment field in a segment defines the number of the \_\_\_\_\_ byte a party expects to receive.

- A) first
- B) last
- C) next
- D) none of the above

72. A SYN segment cannot carry data; it consumes \_\_\_\_\_ sequence number(s).

- A) no
- B) one
- C) two
- D) none of the above

73. The acknowledgment number is \_\_\_\_\_.

- A) independent
- B) randomly generated
- C) cumulative
- D) none of the above

74. The local host and the remote host are defined using IP addresses. To define the processes, we need second identifiers called \_\_\_\_\_.

- A) UDP addresses
- B) transport addresses
- C) port addresses
- D) none of the above

75. Although there are several ways to achieve \_\_\_\_\_ process-to-process communication, the most common is through the \_\_\_\_\_ paradigm.

- A) client-server
- B) client-client
- C) server-server
- D) none of the above

76. A(n) \_\_\_\_\_ machine is a machine that goes through a limited number of states.

- A) infinite state
- B) finite state
- C) both a and b
- D) none of the above

77. UDP uses \_\_\_\_\_ to handle incoming user datagrams that go to different processes on the same host.

- A) flow control
- B) multiplexing
- C) demultiplexing
- D) none of the above