1 UDP and TCP are two protocols at the _____ layer.
A) data-link
B) network
C) transport
D) application

2 A port number is _____ bits long.
A) 8
B) 16
C) 32
D) 64

3 Which of the following does UDP provide?
A) Flow control
B) Connection-oriented delivery
C) Error control
D) None of the choices are correct

4 The source port number 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 choices are correct

5 To use the services of UDP, we need _____ socket addresses.
A) four
B) two
C) three
D) None of the choices are correct

6 UDP packets are called _____.
A) user datagrams
B) segments
C) frames
D) None of the choices are correct

7 UDP packets have a fixed-size header of _____ bytes.
A) 16
B) 8
C) 40
D) 32

8 TCP is a _____protocol.
A) byte-oriented
B) message-oriented
C) block-oriented
D) None of the choices are correct

9 TCP groups a number of bytes together into a packet called a _____.
A) user datagram
B) segment
C) datagram
D) None of the choices are correct

10 TCP is a(n) _____ protocol.
A) connection-oriented
B) connectionless
C) both connection-oriented and connectionless
D) None of the choices are correct

11 TCP is a(n) _____ transport protocol.
A) unreliable
B) best-effort delivery
C) reliable
D) None of the choices are correct

12 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 choices are correct

13 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 choices are correct

14 In TCP, the sequence number for each segment is the number of the _____ byte (virtual byte) carried in that segment.

A) first

B) last

C) middle

D) None of the choices are correct

15 Communication in TCP is _____.

A) simplex

B) half-duplex

C) full-duplex

D) None of the choices are correct

16 In TCP, the value of the acknowledgment field in a sent segment defines the sequence number related to the _____byte a party expects to receive next.

A) first

B) last

C) next

D) None of the choices are correct

17 The inclusion of the checksum in the TCP segment is _____.

A) optional

B) mandatory

C) depends on the type of data

D) None of the choices are correct

18 In TCP, a SYN segment consumes _____ sequence number(s).
A) no
B) one
C) two

D) None of the choices are correct

19 In TCP, a SYN + ACK segment consumes _____ sequence numbers.
A) no
B) three
C) two
D) one

20 In TCP, an ACK segment, if carrying no data, consumes _____ sequence number(s).
A) no
B) one
C) two
D) None of the choices are correct

21 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 choices are correct

22 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 choices are correct

23 In TCP, a FIN segment consumes _____ sequence numbers if it does not carry data.
A) two
B) three
C) no
D) one

24 In TCP, a FIN + ACK segment consumes _____ sequence number(s) if it does not carry data.
A) two
B) three
C) one
D) no

25 In TCP, one end can stop sending data while still receiving data. This is called a _____ termination.
A) half-close
B) half-open
C) full-close
D) None of the choices are correct

26 TCP sliding windows are _____ oriented.
A) packet
B) segment
C) byte
D) None of the choices are correct

27 In TCP, the size of the send window is the _____ of *rwnd* and *cwnd*.
A) maximum
B) sum of
C) minimum
D) None of the choices are correct

28 In TCP, the window should not be _____.
A) opened
B) closed
C) shrunk
D) slide

29 In TCP, the receiver can temporarily shut down the window; the sender, however, can always send a segment of _____ byte(s) after the window is shut
down.
A) ten
B) zero
C) one
D) None of the choices are correct

30 A serious problem can arise in the sliding window operation when either the sending application program creates data slowly or the receiving application
program consumes data slowly, or both. This problem is called the _____.
A) silly window syndrome
B) unexpected syndrome
C) window bug
D) None of the choices are correct

31 Nagle's algorithm can solve the silly window syndrome created by the _____.

A) sender
B) receiver
C) both sender and receiver
D) None of the choices are correct

32 Clark's solution can solve the silly window syndrome created by the _____.
A) sender
B) receiver
C) both sender and receiver
D) None of the choices are correct

33 Delayed acknowledgment can solve the silly window syndrome created by the
_____.
A) sender
B) receiver
C) both sender and receiver
D) None of the choices are correct

34 In TCP, an ACK segments that carry no data consumes _____ sequence number(s).

A) no

B) one

C) two

D) None of the choices are correct

35 In modern implementations of TCP, a retransmission occurs if the retransmission timer expires or _____ duplicate ACK segments have arrived.

A) one

B) two

C) three

D) None of the choices are correct

36 In TCP, _____ retransmission timer is set for an ACK segment.

A) one

B) a previous

C) no

D) None of the choices are correct

37 In TCP, there can be _____ RTT measurement(s) in progress at any time.

A) two

B) only one

C) several

D) None of the choices are correct

38 We need to 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 choices are correct

39 In TCP, urgent data requires the urgent pointer field as well as the URG bit (to be set) in the _____ field.

A) control

B) offset

C) sequence number

D) None of the choices are correct

40 In TCP, if the ACK value is 200, then byte _____ has been received successfully.

A) 199

B) 200

C) 201

D) None of the choices are correct

41 _____ control refers to the mechanisms and techniques to keep the load below the capacity.

A) Flow

B) Error

C) Congestion

D) None of the choices are correct

42 In TCP's _____ algorithm the size of the congestion window increases exponentially until it reaches a threshold.

A) congestion avoidance

B) congestion detection

C) slow start

D) None of the choices are correct

43 In TCP's _____ algorithm the size of the congestion window increases additively until congestion is detected.

A) congestion avoidance

B) congestion detection

C) slow start

D) None of the choices are correct

44 _____ treats the two signs of congestion detections, timeout and three duplicate ACKs, in the same way.

A) Taho TCP

B) Reno TCP

C) New Reno TCP

D) None of the choices are correct

45 In _____ TCP, when the connection is established, TCP starts the slow start algorithms and sets the *ssthresh* variable to a pre-agreed value (normally 64 or 128 kilobytes) and the *cwnd* variable to 1 MSS.

A) Taho

B) Reno

C) new Reno

D) None of the choices are correct

46 The _____ added a new state to the congestion control FSM, called the fast recovery state.

A) Taho TCP

B) Reno TCP

C) new Reno TCP

D) None of the choices are correct

47 The _____ treated the two signals of congestion, timeout and arrival of three duplicate ACKs, differently.

A) Taho TCP

B) Reno TCP

C) new Reno TCP

D) None of the choices are correct

48 The _____ state in Reno TCP is a state somehow between the slow start and the congestion avoidance states.

A) congestion avoidance

B) congestion detection

C) slow recovery

D) None of the choices are correct

49 In the Reno TCP, when TCP enters the fast recovery, if duplicate ACKs continue to come, TCP _____.

A) stays in this state, but the *cwnd* grows additively

B) stays in this state, but the *cwnd* grows exponentially

C) moves to slow start state

D) moves to the congestion avoidance state but deflate the size of the *cwnd* to *ssthresh* value

50 In the Reno TCP, when TCP enters the fast recovery, if a timeout occurs, TCP

_____.

A) stays in this state, but the *cwnd* grows additively

B) stays in this state, but the *cwnd* grows exponentially

C) moves to slow start state

D) moves to the congestion avoidance state but deflate the size of the cwnd to ssthresh value

51 In the Reno TCP, when TCP enters the fast recovery, if a new (non duplicate) ACK arrives, TCP _____.

A) stays in this state, but the *cwnd* grows additively

B) stays in this state, but the *cwnd* grows exponentially

C) moves to slow start state

D) moves to the congestion avoidance state but deflates the size of the cwnd to ssthresh value

52 A later version of TCP, called _____ TCP, made an extra optimization on the _____ TCP.

A) new Reno; Reno

B) new Taho; Taho

C) new Reno; Taho

D) new Taho; Reno

53 In the slow start algorithm, the size of the congestion window grows _____ until _____.
A) exponentially; it reaches a threshold
B) exponentially; congestion is detected
C) additively; it reaches a threshold
D) additively; congestion is detected

54 In the congestion avoidance algorithm, the size of the congestion window grows _____.
A) exponentially; it reaches a threshold
B) exponentially; congestion is detected
C) additively; it reaches a threshold
D) additively; congestion is detected

55 The congestion window size, after it passes the initial slow start state, follows a saw tooth pattern called _____.
A) exponential increase, additive decrease
B) additive increase, exponential decrease
C) multiplicative increase, additive decrease
D) additive increase, multiplicative decrease

56 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 choices are correct

57 SCTP allows _____ service in each association.
A) only single-stream
B) multistream
C) only double-stream
D) None of the choices are correct

58 In SCTP, a data chunk is numbered using _____.

A) a TSN

B) an SI

C) an SSN

D) None of the choices are correct

59 To distinguish between different streams, SCTP uses _____.

A) a TSN

B) an SI

C) an SSN

D) None of the choices are correct

60 The control information in SCTP is carried in the _____.

A) header control field

B) control chunks

C) data chunks

D) None of the choices are correct