Chapter 6 Quiz

1
In _____ delivery, both the deliverer of the IP packet and the destination are on the same network.
A) a connectionless
B) a direct
C) an indirect
D) none of the above

2
In _____ delivery, the deliverer of the IP packet and the destination are on different networks.
A) a connection-oriented
B) a direct
C) an indirect
D) none of the above

3
In _____ delivery, packets of a message are logically connected to one another.
A) a connectionless
B) a connection-oriented
C) a direct
D) none of the above

4
In _____ delivery, a packet is not connected to any other packet.
A) a connectionless
B) a connection-oriented
C) a direct
D) none of the above

5
In classful addressing, when a direct delivery is made, both the deliverer and receiver have the same _____.
A) IP address
B) hostid
C) netid
D) none of the above

6
In classful addressing, when an indirect delivery is made, the deliverer and receiver have _____.
A) the same IP address
B) different netids
C) the same netid
D) none of the above

7
In _____ forwarding, the full IP address of a destination is given in the routing table.
A) next-hop
B) network-specific
C) host-specific
D) default

8
In _____ forwarding, the mask and destination addresses are both 0.0.0.0 in the routing table.
A) next-hop

B) network-specific
C) host-specific
D) default

9
In _____ forwarding, the destination address is a network address in the routing table.
A) next-hop
B) network-specific
C) host-specific
D) default

10
In _____ forwarding, the routing table holds the address of just the next hop instead of complete route information.
A) next-hop
B) network-specific
C) host-specific
D) default

11
In _____ addressing, a typical forwarding module can be designed using three tables, one for each unicast class (A, B, C).
A) classful
B) classless
C) both a and b
D) none of the above

12
In classful addressing, the class of the address can be found by shifting the copy of the address ____ bits to the right.
A) 32
B) 16
C) 28
D) none of the above

13
In classful addressing we need a routing table with at least _____ columns.
A) 4
B) 3
C) 8
D) none of the above

14
In classless addressing, we need a routing table with at least _____ columns.
A) 4
B) 3
C) 8
D) none of the above

15
The idea of address aggregation was designed to alleviate the increase in routing table entries when using _____.

A) classful addressing
B) classless addressing
C) both a and b
D) none of the above

16
The principle of _____ states that the routing table is sorted from the longest mask to the shortest mask.
A) first mask matching
B) shortest mask matching
C) longest mask matching
D) none of the above

17
The use of hierarchy in routing tables can _____ the size of the routing tables.
A) reduce
B) increase
C) both a and b
D) none of the above

18
_____ deals with the issues of creating and maintaining routing tables.
A) Forwarding
B) Routing
C) Directing
D) none of the above

19
A _____ routing table contains information entered manually.
A) static
B) dynamic
C) hierarchical

Chapter 7 Quiz

1) A _____ address is an internetwork address with universal jurisdiction.
A) physical
B) logical
C) a and b
D) none of the above

2) The logical addresses in the TCP/IP protocol suite are called _____ addresses.
A) port
B) IP
C) Email
D) none of the above

3) A _____ is a local address. Its jurisdiction is over a local network.
A) physical
B) logical
C) a and b
D) none of the above

4)If the sender is a host and wants to send a packet to another host on the same network, the logical address that must be mapped to a physical address is _____.
A) the destination IP address in the datagram header
B) the IP address of the router found in the routing table
C) either a or b
D) none of the above

5) If the sender is a host and wants to send a packet to another host on another network, the logical address that must be mapped to a physical address is _____.
A) the destination IP address in the datagram header
B) the IP address of the router found in the routing table
C) either a or b
D) none of the above

6) The sender is a router that has received a datagram destined for a host on another network. The logical address that must be mapped to a physical address is _____.
A) the destination IP address in the datagram header
B) the IP address of the router found in the routing table
C) either a or b
D) none of the above

7) The sender is a router that has received a datagram destined for a host in the same network. The logical address that must be mapped to a physical address is _____.
A) the destination IP address in the datagram header
B) the IP address of the router found in the routing table
C) either a or b
D) none of the above

8) In _____, a table associating a logical address with a physical address is updated manually.
A) static mapping
B) dynamic mapping
C) physical mapping
D) none of the above

9) _____ is a dynamic mapping protocol in which a logical address is found for a given physical address.
A) ARP
B) RARP
C) both a and b
D) none of the above

10) _____ is a dynamic mapping protocol in which a physical address is found for a given logical address.
A) ARP
B) RARP
C) both a and b
D) none of the above

11) The target hardware address on an Ethernet is _____ in an ARP request.
A) 0x000000000000
B) 0.0.0.0
C) variable
D) class dependent

12)An ARP reply is normally _____.
A) broadcast
B) multicast
C) unicast
D) none of the above

13) An ARP request is normally _____.
A) broadcast
B) multicast
C) unicast
D) none of the above

14) A technique called _____ is used to create a subnetting effect.
A) ARP
B) RARP
C) proxy ARP
D) none of the above

15) A _____ is an ARP that acts on behalf of a set of hosts.
A) ARP
B) RARP
C) proxy ARP
D) none of the above

16) A sender usually has more than one IP datagram to send to the same destination. It is inefficient to use the ARP protocol for each datagram destined for the same host or router. The solution is the _____.
A) routing table
B) cache table
C) ARP table
D) none of the above

17) The RARP request packets are normally _____.
A) broadcast

B) unicast
C) multicast
D) none of the above

18)The RARP reply packets are normally____ _____ .
A) broadcast
B) unicast
C) multicast
D) none of the above

19) The ARP component that sends an ARP reply to the data link layer is the _____.
A) cache controller
B) input module
C) output module
D) none of the above

20) The ARP component that sends an IP packet to a queue is the _____.
A) cache controller
B) input module
C) output module
D) none of the above

Chapter 8 Quiz

1) The _____ protocol is the transmission mechanism used by the TCP/IP suite.
A) ARP
B) IP
C) RARP
D) none of the above

2) IP is _____ datagram protocol.
A) unreliable
B) connectionless
C) both a and b
D) none of the above

3) The term _____ means that IP provides no error checking or tracking. IP assumes the unreliability of the underlying layers and does its best to get a transmission through to its destination, but with no guarantees.
A) reliable delivery
B) connection-oriented delivery
C) best-effort delivery
D) none of the above

4) A best-effort delivery service such as IP includes _____.
A) error checking
B) error correction
C) datagram acknowledgment
D) none of the above

5)An HLEN value of decimal 10 means _____.
A) there are 10 bytes of options
B) there are 40 bytes of options
C) there are 40 bytes in the header
D) none of the above

6) A datagram is fragmented into three smaller datagrams. Which of the following is true?
A) The do not fragment bit is set to 1 for all three datagrams.
B) The more fragment bit is set to 0 for all three datagrams.
C) The identification field is the same for all three datagrams.
D) none of the above

7) Which field or bit value unambiguously identifies the datagram as a fragment?
A) Donfiltered= 0
B) More Fragment bit = 0
C) Fragment offset = 1000
D) none of the above

8) If the fragment offset has a value of 100, it means that _____.
A) the datagram has not been fragmented
B) the datagram is 100 bytes in size
C) the first byte of the datagram is byte 800
D) none of the above

9) What is needed to determine the number of the last byte of a fragment?
A) offset number
B) total length

C) b and c
D) none of the above

10) The IP header size _____.
A) is 20 to 60 bytes long
B) is 20 bytes long
C) is 60 bytes long
D) none of the above

11) Packets in the IP layer are called _____ .
A) segments
B) datagrams
C) frames
D) none of the above

12) The total length field defines the total length of the datagram _____.
A) including the header
B) excluding the header
C) header and option length
D) none of the above

13) When a datagram is encapsulated in a frame, the total size of the datagram must be less than the _____.
A) MUT
B) MAT
C) MTU
D) none of the above

14) Which IP option is used if exactly four specific routers are to be visited by the datagram?
A) record route
B) strict source route
C) loose source route
D) none of the above

15) For the timestamp option, a flag value of _____ means that each visited router adds only the timestamp in the provided field.
A) 0
B) 1
C) 2
D) none of the above

16) The IP header field formerly known as the service type field is now called the _____ field.
A) IETF
B) checksum
C) differentiated services
D) none of the above

17) The _____ module takes fragments of a message and puts them back in order.
A) processing
B) fragmentation
C) reassembly
D) none of the above

18)The _____ module sends out an IP packet, the next-hop address, and interface information.
A) processing

B) forwarding
C) fragmentation
D) none of the above

19) The _____ module discards datagrams with a TTL value of zero.
A) processing
B) forwarding
C) fragmentation
D) none of the above

20) The output of the _____ module is an IP packet destined for an upper-layer protocol.
A) processing
B) forwarding
C) reassembly
D) none of the above

21)The _____ module consults the MTU table to determine the packet size necessary for transmission.
A) processing
B) forwarding
C) fragmentation
D) none of the above

22) The value of the _____ subfield in an option controls the presence of the option in fragmentation.
A) copy
B) class
C) number
D) none of the above

23) The value of the _____ subfield defines the general purpose of an option.
A) copy
B) class
C) number
D) none of the above

24)The value of the _____ subfield defines the types of an option.
A) copy
B) class
C) number
D) none of the above

25)Only _____ end of option option can be used in a datagram.
A) two
B) three
C) one
D) none of the above

Chapter 9 Quiz

1) ICMP is a _____ layer protocol.
A) data link
B) transport
C) network
D) none of the above

2) ICMP messages are divided into two broad categories:
A) query and error reporting messages
B) request and response messages
C) request and reply messages
D) none of the above

3) An ICMP message has _____ header and a variable-size data section.
A) a 16-byte
B) a 32-byte
C) an 8-byte
D) none of the above

4) Which of the following is true about ICMP messages?
A) An ICMP error message may be generated for an ICMP error message.
B) An ICMP error message may be generated for each fragment.
C) An ICMP error message may be generated for a multicast datagram.
D) none is true

5) Which of the following is true about ICMP messages?
A) An ICMP error message may be generated for an ICMP error message.
B) An ICMP error message may be generated only for the first fragment.
C) An ICMP error message may be generated for a multicast datagram.
D) none is true

6) Which of the following is true about ICMP messages?
A) An ICMP error message may be generated for an ICMP error message.
B) An ICMP error message may be generated only for each fragment.
C) No ICMP error message will be generated for a datagram having a special address such as 127.0.0.0 or 0.0.0.0.
D) none is true

7) If a host needs to synchronize its clock with another host, it sends a _____ message.
A) timestamp-request
B) source-quench
C) router-advertisemen t
D) none of the above

8) The purpose of echo request and echo reply is to _____.
A) report errors
B) check node-to-node communication
C) check packet lifetime
D) none of the above

9) In error reporting the encapsulated ICMP packet goes to _____.
A) the original sender
B) the receiver
C) a router

D) none of the above

10) What field uniquely identifies the kind of ICMP message (for example, echo reply versus echo request)?

A) type

B) code

C) option ID

D) none of the above

11) When the hop-count field reaches zero and the destination has not been reached, a _____ error message is sent.

A) destination- unreachable

B) time-exceeded

C) parameter-problem

D) none of the above

12) When all fragments of a message have not been received within the designated amount of time, a _____ error message is sent.

A) source-quench

B) time-exceeded

C) parameter-problem

D) none of the above

13) Errors in the header or option fields of an IP datagram require a _____ error message.

A) parameter-problem

B) source-quench

C) router-solicitation

D) none of the above

14) A _____ can learn about network _____ by sending out a router-solicitation packet.

A) router, routers

B) router, hosts

C) host, routers

D) none of the above

15) Who can send ICMP error-reporting messages?

A) routers

B) destination hosts

C) a and b

D) none of the above

16) One method to alert a source host of congestion is the _____ message.

A) redirection

B) echo-request

C) source-quench

D) none of the above

17) A time-exceeded message is generated if _____.

A) the round-trip time between hosts is close to zero

B) fragments of a message do not arrive within a set time

C) a and b

D) none of the above

18) To determine whether or not a node is reachable, _____ message can be sent.

A) an echo-reply

B) an echo-request

C) a redirection
D) none of the above

19) In calculating the time difference between two clocks, a negative value indicates _____.
A) an invalid calculation
B) the source clock lags behind the destination clock
C) the destination clock lags behind the source clock
D) none of the above

20) An IP datagram (datagram A) cannot reach its destination. An ICMP error message is sent to the source. The data field of the IP datagram (datagram B) that encapsulates the ICMP packet contains _____.
A) only the ICMP header
B) the ICMP header plus 8 bytes of datagram A
C) only datagram A
D) none of the above

21) In the ICMP package, ICMP packets are the output of _____.
A) only the input module
B) only the output module
C) both the input and the output module
D) none of the above

22) ICMP packets are the input to _____.
A) only the input module
B) only the output module
C) both the input and the output module
D) none of the above

Chapter 10 Quiz

1) IGMP is a companion to the _____ protocol.
A) UDP
B) TCP
C) ICM
D) none of the above

2) IGMP is _____ protocol.
A) an error reporting
B) a group management
C) a transmission
D) none of the above

3) IGMP helps a _____ router create and update a list of loyal members related to each router interface.
A) broadcast
B) unicast
C) multicast
D) none of the above

4) IGMP operates _____.
A) locally
B) globally
C) both a and b
D) none of the above

5) An IGMP query is sent from a _____ to a _____.
A) host; host
B) host; router
C) router; host or router
D) none of the above

6) The _____ is used by a router in response to a received leave report.
A) general query message
B) special query message
C) membership report
D) none of the above

7) The least significant 23 bits in a 48-bit Ethernet address identify a _____.
A) multicast router
B) host
C) multicast group
D) none of the above

8) The _____ field of the IGMP message is all zeros in a query message.
A) version
B) type
C) group address
D) none of the above

9) The _____ field of the IGMP message is 17 for a query message.
A) maximum response time
B) type
C) checksum

D) none of the above

10) A multicast message is sent from _____ to _____.
A) one source; one destination
B) one source; multiple destinations
C) multiple sources; one destination
D) none of the above

11) In networks that do not support physical multicast addressing, multicasting can be accomplished through _____.
A) mapping
B) queries
C) tunneling
D) none of the above

12) If four hosts on a network belong to the same group, a total of _____ sent in response to a general query message.
A) one membership report is
B) two membership reports are
C) three membership reports are
D) none of the above

13) A process called _____ sends a multicast packet through WANs that do not support physical multicast addressing.
A) tunneling
B) delayed response
C) jamming
D) none of the above

14) A group table entry is in the _____ state if there is no corresponding timer running.
A) FREE
B) DELAYING
C) IDLE
D) none of the above

15) A group table entry in the _____ state sends a request when its timer expires.
A) FREE
B) DELAYING
C) IDLE
D) none of the above

16) The _____ module receives an IGMP report or query.
A) input
B) output
C) group-joining
D) none of the above

17) The _____ module sends out an IGMP report.
A) input
B) output
C) group-joining
D) none of the above

18) The _____ module can create a new entry in the group table and start a timer.
A) input

B) output
C) group-joining
D) none of the above
19) The _____ module can decrement the reference count in the group table.
A) input
B) output
C) group-leaving
D) none of the above

20) In IGMP, a membership report is sent _____.
A) once
B) twice
C) three times
D) none of the above

21) In IGMP, the general query message _____ _____ group.
A) does not define a particular
B) explicitly defines a
C) can define more than one
D) none of the above

22) To prevent unnecessary traffic, IGMP uses _____ __ strategy.
A) a quick response
B) an all-host response
C) a delayed response
D) none of the above

23)To prevent unnecessary traffic, IGMP designates one router as the _____ for each network.
A) query router
B) designated router
C) multicast router
D) none of the above

24) An IGMP packet is carried in an _____ packet.
A) UDP
B) IP
C) Ethernet frame
D) none of the above

25) The IP packet that carries an IGMP packet has a value of _____ in its protocol field.
A) 3
B) 2
C) 1
D) none of the above

Chapter 12 Quiz

1) TCP is a _____protocol.
A) stream-oriented
B) message-oriented
C) block-oriented
D) none of the above

2) 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

3) 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

4) TCP groups a number of bytes together into a packet called a _____.
A) user datagram
B) segment
C) datagram
D) none of the above

5) TCP is a _____ protocol..
A) connection-oriented
B) connectionless
C) both a and b
D) none of the above

6) TCP is a(n) _____ transport protocol.
A) unreliable
B) best-effort delivery
C) reliable
D) none of the above

7) TCP uses _____ _____ to check the safe and sound arrival of data.
A) an acknowledgment mechanism
B) out-of-band signalling
C) the services of another protocol
D) none of the above

8) 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

9) 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

10) Communication in TCP is _____.
A) simplex
B) half-duplex
C) full-duplex
D) none of the above

11) 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

12) The acknowledgment number is _____.
A) independent
B) randomly generated
C) cumulative
D) none of the above

13) The value of window size is determined by _____.
A) the sender
B) the receiver
C) both the sender and receiver
D) none of the above

14) 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

15) A TCP segment is encapsulated in _____.
A) an IP datagram
B) an Ethernet frame
C) a UDP user datagram
D) none of the above

16) Connection establishment in TCP is called _____ handshaking.
A) two-way
B) four-way
C) one-way
D) none of the above

17) A SYN segment cannot carry data; it consumes _____ sequence number(s).
A) no
B) one
C) two

D) none of the above

18) A SYN + ACK segment cannot carry data; it consumes _____ sequence numbers.
A) no
B) three
C) two
D) none of the above

19) An ACK segment, if carrying no data, consumes _____ sequence number(s).
A) no
B) one
C) two
D) none of the above

20) 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

21) 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

22) The FIN segment consumes ____ sequence numbers if it does not carry data.
A) two
B) three
C) no
D) none of the above

23) 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

24) 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

25) 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

26) A common value for MSL is between___ seconds and ___ minute(s).
A) 30: 2
B) 30; 1
C) 50; 1

D) none of the above

27) _____ 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

28)To accomplish flow control, TCP uses a _____ window protocol.
A) limited-size
B) sliding
C) fixed-size
D) none of the above

29)TCP sliding windows are _____ oriented.
A) packet
B) segment
C) byte
D) none of the above

30)In TCP, the size of the window is the _____ of rwnd and cwnd.
A) maximum
B) sum of
C) minimum
D) none of the above

31)In TCP, the window should not be _____.
A) opened
B) closed
C) shrunk
D) none of the above

32)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 above

33)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 above

34)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 above

35)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 above

36)Delayed acknowledgment can solve the silly window syndrome created by the _____.
A) sender
B) receiver
C) both sender and receiver
D) none of the above

37) CK segments consume _____ sequence number(s) and _____ acknowledged.
A) no; are not
B) one; are not
C) no; are
D) none of the above

38)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 above

39)In TCP, _____ retransmission timer is set for an ACK segment.
A) one
B) a previous
C) no
D) none of the above

40)TCP delivers _____ out-of-order segments to the process.
A) all
B) no
C) some
D) none of the above

41)Lost acknowledgments may create a _____ if they are not handled properly.
A) livelock
B) deadlock
C) retransmission
D) none of the above

42 0In the _____ 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 above
43)In the _____ 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 above

44)In the congestion detection algorithm, if detection is by a time-out, a new _____ phase starts.
A) slow start
B) congestion avoidance
C) congestion detection
D) none of the above

45)In the congestion detection algorithm, if detection is by three ACKs, a new _____ phase starts.
A) slow start
B) congestion avoidance
C) congestion detection
D) none of the above

46)In TCP, there can be _____ RTT measurement(s) in progress at any time.
A) two
B) only one
C) several
D) none of the above

47)The value of the window scale factor can be determined during _____.
A) data transmission
B) connection establishment
C) connection termination
D) none of the above

48)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

49)If a segment carries data along with an acknowledgment, this is called _____.
A) backpacking
B) piggybacking
C) piggypacking
D) none of the above

50)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

51)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

52)Which of the following is not a valid acknowledgment number?
A) 0
B) 1
C) 232
D) none of the above

53)The options field of the TCP header ranges from 0 to _____ bytes.
A) 10
B) 20
C) 40
D) none of the above

54)Which option defines the maximum number of bytes in a TCP segment?
A) maximum segment size
B) window scale factor
C) timestamp
D) none of the above

55)If the ACK value is 200, then byte _____ has been received successfully.
A) 199
B) 200
C) 201
D) none of the above

56)The _____ timer prevents a long idle connection between two TCPs.
A) retransmission
B) persistence
C) keepalive
D) none of the above

57)The _____ timer is needed to handle the zero window-size advertisement.
A) retransmission
B) persistence
C) keepalive
D) none of the above

58)Karn's algorithm is used in calculations by the _____ timer.
A) retransmission
B) persistence
C) keepalive
D) none of the above

59)In the _____ state, the client TCP has closed its connection to the server.
A) CLOSED
B) FIN-WAIT-1
C) FIN-WAIT-2
D) none of the above

60)A special segment called a probe is sent by a sending TCP when the _____ timer goes off.
A) transmission
B) persistence
C) keepalive
D) none of the above

Chapter 13 Quiz

1)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

2)SCTP allows _____ service in each association.
A) single stream
B) multistream
C) double stream
D) none of the above

3)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

4)In SCTP, a data chunk is numbered using _____.
A) a TSN
B) an SI
C) an SSN
D) none of the above

5)To distinguish between different streams, SCTP uses _____.
A) a TSN
B) an SI
C) an SSN
D) none of the above

6)To distinguish between different data chunks belonging to the same stream, SCTP uses _____.
A) TSNs
B) SIs
C) SSNs
D) none of the above

7)TCP has _____ ; SCTP has _____ .
A) packets; segments
B) segments; packets
C) segments; frames
D) none of the above

8)The control information in SCTP is included in the _____.
A) header control field
B) control chunks
C) data chunks
D) none of the above

9)An SCTP packet can carry _____.
A) only one data chunk
B) several data chunks

C) no data chunks
D) none of the above
10) Options in SCTP _____ _____ _____.
A) are handled by defining new chunk types
B) are included in the base header of a packet
C) are handled by the data chunks
D) none of the above

11)The general header in SCTP is _____ bytes.
A) 20
B) 8
C) 12
D) none of the above

12)An SCTP sequence number (TSN) is located in the _____.
A) general header
B) data chunk header
C) control chunk header
D) none of the above

13)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

14)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

15)The checksum in SCTP is _____ bits.
A) 16
B) 32
C) 64
D) none of the above

16)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

17)The association identifier in SCTP cannot be a combination of logical and port addresses because of _____ ____.
A) multistream services
B) multihoming service
C) both a and b
D) none of the above

18)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

19)Control chunks in SCTP _____ _____.
A) never use a TSN, IS, or SSN number
B) use a TSN, but no IS or SSN number
C) use a TSN or IS, but no SSN number
D) none of the above

20)In SCTP, TSN is a cumulative number identifying the _____; SI defines the _____; SSN defines the _____.
A) association; chunks in a stream; stream
B) association; stream; chunks in a stream
C) chunk; stream; association
D) none of the above

21)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

22)In an SCTP packet, control chunks come _____ data chunks.
A) after
B) before
C) a or b
D) none of the above

23)In SCTP, chunks need to terminate on a _____boundary.
A) 16-bit
B) 32-bit
C) 64-bit
D) none of the above

24)In SCTP, the number of padding bytes are _____ in the value of the length field.
A) included
B) not included
C) a or b
D) none of the above

25)In SCTP, a DATA chunk _____carry data belonging to more than one message.
A) can
B) cannot
C) either a or b
D) none of the above

26)In SCTP, a message _____ split into several chunks.
A) can be
B) cannot be
C) either a or b
D) none of the above

27)In SCTP, the data field of the DATA chunk must carry at least _____ byte of data, which means the value of length field cannot be less than _____.
A) 8; 24
B) 1; 17

C) 40; 56
D) none of the above

28)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

29)A connection in SCTP is called an _____ .
A) negotiation
B) association
C) transmission
D) none of the above

30)The acknowledgment in SCTP defines the cumulative TSN, the TSN of the _____ .
A) last data chunk received in order
B) next data chunk to be received
C) last data chunk received out of order
D) none of the above

31)A DATA chunk arrives with its B/E bits equal to 00. It is _____.
A) the first fragment
B) the last fragment
C) the middle fragment
D) not fragmented

32)A DATA chunk arrives with its B/E bits equal to 01. It is _____.
A) the first fragment
B) the last fragment
C) the middle fragment
D) not fragmented

33)A DATA chunk arrives with its B/E bits equal to 10. It is _____.
A) the first fragment
B) the last fragment
C) the middle fragment
D) not fragmented

34)A DATA chunk arrives with its B/E bits equal to 11. It is _____.
A) the first fragment
B) the last fragment
C) the middle fragment
D) not fragmented

35)The number of states in the state transition diagram of SCTP is _____ the number of states in the state transition diagram of TCP.
A) less than
B) greater than
C) equal
D) can be any of the above cases

36)Which chunk is not involved in association establishment?
A) INIT chunk
B) COOKIE ECHO chunk

C) SACK chunk
D) all are involved

37)Which chunk probes the condition of an association?
A) ERROR chunk
B) HEARTBEAT chunk
C) SACK chunk
D) none of the above

38)The _____ chunk is sent when an end point finds an error in a received packet.
A) ERROR
B) ABORT
C) SHUTDOWN
D) none of the above

39)In SCTP, duplicate messages are _____.
A) discarded
B) tracked
C) b and c
D) none of the above

40)SCTP strategies for congestion control include _____.
A) exponential increase
B) additive increase
C) multiplicative decrease
D) all of the above

Chapter 14 Quiz

1)A static table is one _____.
A) with manual entries
B) which is updated automatically
C) either a or b
D) none of the above

2)A dynamic table is one _____.
A) with manual entries
B) which is updated automatically
C) either a or b
D) none of the above

3)For purposes of routing, the Internet is divided into _____.
A) wide area networks
B) autonomous networks
C) autonomous systems
D) none of the above

4)_____ is a group of networks and routers under the authority of a single administration.
A) An autonomous system
B) An area
C) a and b
D) none of the above

5)Routing inside an autonomous system is referred to as _____ ___.
A) interdomain routing
B) intradomain routing
C) both a and b
D) none of the above

6)Routing between autonomous systems is referred to as _____ .
A) interdomain routing
B) intradomain routing
C) both a and b
D) none of the above

7)In _____ routing, the least cost route between any two nodes is the route with the minimum distance.
A) path vector
B) distance vector
C) link state
D) none of the above

8)In _____, each node maintains a vector (table) of minimum distances to every node.
A) path vector
B) distance vector
C) link state
D) none of the above

9)In distance vector routing, each node periodically shares its routing table with _____ and whenever there is a change.
A) every other node

B) its immediate neighbors
C) one neighbor
D) none of the above

10)The Routing Information Protocol (RIP) is an intradomain routing based on _____ routing.
A) distance vector
B) link state
C) path vector
D) none of the above

11)The metric used by _____ is the hop count.
A) OSPF
B) RIP
C) BGP
D) none of the above

12)In RIP, the _____ timer controls the advertising of regular update messages.
A) garbage collection
B) expiration
C) periodic
D) none of the above

13)In RIP, the _____ timer is used to purge invalid routes from the table.
A) garbage collection
B) expiration
C) periodic
D) none of the above

14)In RIP, the _____ timer controls the validity of the route.
A) garbage collection
B) expiration
C) periodic
D) none of the above

15)RIP uses the services of _____.
A) TCP
B) UDP
C) IP
D) none of the above

16)The _____ routing uses the Dijkstra algorithm to build a routing table.
A) distance vector
B) link state
C) path vector
D) none of the above

17)The Open Shortest Path First (OSPF) protocol is an intradomain routing protocol based on _____ routing.
A) distance vector
B) link state
C) path vector
D) none of the above
18)The _____ protocol allows the administrator to assign a cost, called the metric, to each route.
A) OSPF
B) RIP

C) BGP
D) none of the above

19)In OSPF, a _____ link connects two routers without any other host or router in between.
A) point-to-point
B) transient
C) stub
D) none of the above

20)In OSPF, a _____ link is a network with several routers attached to it.
A) point-to-point
B) transient
C) stub
D) none of the above

21)In OSPF, a _____ link is a network is connected to only one router.
A) point-to-point
B) transient
C) stub
D) none of the above

22)In OSPF, when the link between two routers is broken, the administration may create a _____ link between them using a longer path that probably goes through several routers.
A) point-to-point
B) transient
C) stub
D) none of the above

23)In OSPF, a _____ defines the links of a true router.
A) network link
B) router link
C) summary link to network
D) none of the above

24)In OSPF, a _____ defines the links of a network.
A) network link
B) router link
C) summary link to network
D) none of the above

25)In OSPF, an area border router advertises a _____ LSA.
A) network link
B) router link
C) summary link to network
D) none of the above

26)OSPF uses the _____ message to create neighborhood relationships and to test the reachability of neighbors.
A) link state request
B) database description
C) link state update
D) none of the above

27)In OSPF, the _____ message does not contain complete database information; it only gives an outline, the title of each line in the database.

A) link state request
B) database description
C) link state update
D) none of the above

28)In OSPF, a _____ message is sent by a router that needs information about a specific route or routes.
A) link state request
B) database description
C) link state update
D) none of the above

29)In _____ routing, we assume that there is one node (or more) in each autonomous system that acts on behalf of the entire autonomous
system.
A) distant vector
B) path vector
C) link state
D) none of the above

30)_____ is an interdomain routing protocol using path vector routing.
A) BGP
B) RIP
C) OSPF
D) none of the above

31)BGP can have two types of sessions: _____ and _____ sessions.
A) E-BGP; A-BGP
B) I-BGP; C-BGP
C) E-BGP; I-BGP
D) none of the above

32)To create a neighborhood relationship, a router running BGP sends an _____ message.
A) open
B) update
C) keepalive
D) none of the above

33)In BGP, the _____ message is used by a router to withdraw destinations that have been advertised previously, or to announce a route to a new destination, or both.
A) open
B) update
C) keepalive
D) none of the above

34)The routers running the BGP protocols exchange _____ messages regularly to tell each other that they are alive.
A) open
B) update
C) keepalive
D) none of the above

35)In BGP, a _____ message is sent by a router whenever an error condition is detected or a router wants to close the connection.
A) open

B) update
C) keepalive
D) none of the above

36)BGP messages are encapsulated in _____.
A) TCP segments
B) UDP user datagrams
C) IP datagrams
D) none of the above

37)An area is _____.
A) part of an AS
B) composed of at least two ASs
C) another term for an AS
D) none of the above

Chapter 15 Quiz

1)A one-to-all communication between one source and all hosts on a network is classified as a _____ communication.
A) unicast
B) multicast
C) broadcast
D) none of the above

2) one-to-many communication between one source and a specific group of hosts is classified as a _____ communication.
A) unicast
B) multicast
C) broadcast
D) none of the above

3)A one-to-one communication between one source and one destination is classified as a _____ ommunication.
A) unicast
B) multicast
C) broadcast
D) none of the above

4)In _____, the router forwards the received packet through only one of its interfaces.
A) unicasting
B) multicasting
C) broadcasting
D) none of the above

5)In _____, the router may forward the received packet through several of its interfaces.
A) unicasting
B) multicasting
C) broadcasting
D) none of the above

6)Emulation of _____ through _____ is not efficient and may create long delays.
A) unicasting; multiple unicasting
B) multicasting; multiple unicasting
C) broadcasting; multicasting
D) none of the above

7)In unicast routing, each router in the domain has a table that defines a _____ path tree to possible destinations.
A) average
B) longest
C) shortest
D) none of the above

8)In multicast routing, each involved router needs to construct a _____ path tree for each group.
A) average
B) longest
C) shortest
D) none of the above

9)In the _____ tree approach, each router needs to have one shortest path tree for each group.
A) group-shared
B) source-based
C) a or b
D) none of the above

10)In the group-shared tree approach, _____ involved in multicasting.
A) only the core router is
B) all routers are
C) only some routers are
D) none of the above

11)Multicast link state routing uses the _____ tree approach.
A) source-based
B) group-shared
C) a or b
D) none of the above

12)The Multicast Open Shortest Path First (MOSPF) protocol is an extension of the OSPF protocol that uses multicast routing to create source-based trees. The protocol is based on _____ routing.
A) distance vector
B) link state
C) path vector
D) none of the above

13)MOSPF is a _____ protocol.
A) data-driven
B) command-driven
C) both a and b
D) none of the above

14)_____ broadcasts packets, but creates loops in the systems.
A) Forwarding
B) Flooding
C) Backwarding
D) none of the above

15)In RPF, a router forwards only the copy that has traveled the _____ path from the source to the router.
A) shortest
B) longest
C) average
D) none of the above

16)RPF eliminates the _____ in the flooding process.
A) forwarding
B) backwarding
C) flooding
D) none of the above

17)RPF guarantees that each network receives only ____ of the multicast packet.
A) one copy
B) two copies

C) a or b
D) none of the above

18)RPB creates a shortest path _____ tree from the source to each destination.
A) unicast
B) multicast
C) broadcast
D) none of the above

19)RPB guarantees that each destination receives _____ of the packet.
A) one copy
B) no copies
C) multiple copies
D) none of the above

20)In _____, the multicast packet must reach only those networks that have active members for that particular group.
A) RPF
B) RPB
C) RPM
D) none of the above

21)_____ adds pruning and grafting to _____ to create a multicast shortest path tree that supports dynamic membership changes.
A) RPM; RPB
B) RPB; RPM
C) RPF: RPM
D) none of the above

22)_____ is an implementation of multicast distance vector routing. It is a source-based routing protocol, based on RIP.
A) MOSPF
B) DVMRP
C) CBT
D) none of the above

23)DVMRP is a _____routing protocol, based on RIP.
A) source-based
B) group-shared
C) both a and b
D) none of the above

24)Pruning and grafting are strategies used in _____.
A) RPF
B) RPB
C) RPM
D) none of the above

25)A _____ message tells an upstream router to stop sending multicast messages for a specific group through a specific router.
A) weed
B) graft
C) prune
D) none of the above

26)A _____ message tells an upstream router to start sending multicast messages for a specific group through a specific router.
A) weed
B) graft
C) prune
D) none of the above

27)CBT is a _____ protocol that uses a core as the root of the tree.
A) source-based
B) group-shared
C) a or b
D) none of the above

28)PIM-DM is used in a _____ multicast environment, such as a LAN.
A) dense
B) sparse
C) a or b
D) none of the above

29)PIM-SM is used in a _____multicast environment such as a WAN.
A) dense
B) sparse
C) a or b
D) none of the above

30)In _____, a logical tunnel is established by encapsulating the multicast packet inside a unicast packet.
A) UNIBONE
B) MULTBONE
C) MBONE
D) none of the above

Chapter 16 Quiz

1)The Bootstrap Protocol (BOOTP) is a client/server protocol designed to provide _____ of information for a diskless computer or a computer that is booted for the first time.
A) one piece
B) two pieces
C) four pieces
D) none of the above

2)The BOOTP client and server can be on _____.
A) the same network
B) different networks
C) both a and b
D) none of the above

3)If BOOTP client and server are on different networks, there is a need for an intermediary called a _____.
A) second client
B) second server
C) relay agent
D) none of the above

4)In BOOTP, the client uses _____ port and the server uses _____port.
A) an ephemeral; a well-known
B) a well-known; a well-known
C) a well-known; an ephemeral
D) none of the above

5)In BOOTP, the server uses the well-known port _____; the client uses the well-known port _____.
A) 67; 68
B) 68; 67
C) 67; 67
D) none of the above

6)In BOOTP, the client often needs to use _____ to obtain the complete information it needs.
A) FTP
B) TFTP
C) SMTP
D) none of the above

7)BOOTP uses the services of _____.
A) UDP
B) TCP
C) IP
D) none of the above

8)BOOTP is a _____ configuration protocol.
A) dynamic
B) static
C) both a and b
D) none of the above

9)DHCP is a _____ configuration protocol.
A) dynamic
B) static

C) both a and b
D) none of the above

10)DHCP can be configured _____.
A) manually
B) automatically
C) both a and b
D) none of the above

11)DHCP client can be in one of _____ states.
A) 5
B) 6
C) 3
D) none of the above

12)When the DHCP client first starts, it is in the _____ state.
A) selecting
B) initializing
C) requesting
D) none of the above

13)After sending the DHCPDISCOVER message, the client goes to the _____ state.
A) selecting
B) initializing
C) requesting
D) none of the above

14)The default lease time of an IP address offer is _____.
A) 30 minutes
B) 1 hour
C) 2 hours
D) none of the above

15)After sending the DHCPDISCOVER message, the client goes to the _____ state.
A) selecting
B) initializing
C) requesting
D) none of the above

16)_____ is backward compatible with _____.
A) DHCP; BOOTP
B) BOOTP; DHCP
C) neither a nor b
D) none of the above

17)After the selecting state, a DHCP client can go to the _____state.
A) requesting
B) renewing
C) rebinding
D) none of the above

18)After the rebinding state, a DHCP client can go to the _____ state.
A) initializing
B) bound
C) both and b

D) none of the above

19)After the bound state, a DHCP client can go to the _____ state.
A) requesting
B) renewing
C) rebinding
D) none of the above

20)After the renewing state, a DHCP client can go to the _____ state.
A) requesting
B) selecting
C) rebinding
D) none of the above

Chapter 17 Quiz

1)In a _____ name space, a name is assigned to an address. A name in this space is a sequence of characters without structure.
A) flat
B) hierarchical
C) organized
D) none of the above

2)In a _____name space, each name is made of several parts.
A) flat
B) hierarchical
C) organized
D) none of the above

3)To have a hierarchical name space, a _____ __ was designed.
A) domain space
B) domain name
C) domain name space
D) none of the above

4)In the DNS, the names are defined in _____ structure.
A) a linear list
B) an inverted-tree
C) a graph
D) none of the above

5)Each node in the tree has a _____, which is a string with a maximum of ___ characters.
A) label; 127
B) name; 255
C) label; 63
D) none of the above

6)The root of the DNS tree is _____.
A) a string of characters
B) a string of 63 characters
C) an empty string
D) none of the above

7)A full domain name is a sequence of labels separated by _____.
A) semicolons
B) dots
C) colons
D) none of the above

8)If a label is terminated by a null string, it is called a _____.
A) PQDN
B) FQDN
C) SQDN
D) none of the above

9)If a label is not terminated by a null string, it is called a _____.
A) PQDN
B) FQDN
C) SQDN

D) none of the above

10)A _____ is a subtree of the domain name space.
A) label
B) name
C) domain
D) none of the above

11)What a server is responsible for or has authority over is called a _____.
A) domain
B) label
C) zone
D) none of the above

12)A _____ is a server whose zone consists of the whole tree.
A) domain server
B) zone server
C) root server
D) none of the above

13)A _____ server loads all information from the disk file.
A) primary
B) secondary
C) zone
D) none of the above

14)A _____ server loads all information from the primary server.
A) primary
B) secondary
C) zone
D) none of the above

15)When the secondary downloads information from the primary, it is called _____ transfer.
A) domain
B) zone
C) label
D) none of the above

16)In the Internet, the domain name space (tree) is divided into _____ different sections:
A) three
B) two
C) four
D) none of the above

17)The _____ domains define registered hosts according to their generic behavior.
A) generic
B) country
C) inverse
D) none of the above

18 0The first level in the generic domains section allows _____ possible labels.
A) 10
B) 12
C) 16
D) none of the above

19)The _____ domain section uses two-character country abbreviations.
A) generic
B) country
C) inverse
D) none of the above

20)The _____ domain is used to map an address to a name.
A) generic
B) country
C) inverse
D) none of the above

21)In _____ resolution, the resolver expects the server to supply the final answer.
A) iterative
B) recursive
C) straight
D) none of the above

22)In _____ resolution, the server returns the IP address of the server that it thinks can resolve the query.
A) iterative
B) recursive
C) straight
D) none of the above

23)In the domain name chal.atc.fhda. edu, _____ is the least specific label.
A) chal
B) atc
C) edu
D) none of the above

24)In the domain name chal.atc.fhda. edu, _____ is the most specific label.
A) chal
B) atc
C) fhda
D) none of the above

25 0A host with the domain name pit.arc.nasa. gov. is on the _____ level of the DNS hierarchical tree. (The root is level one.)
A) third
B) fourth
C) fifth
D) none of the above

26)A pointer query involves the _____ domain.
A) inverse
B) reverse
C) root
D) none of the above

27)DNS can use the services of _____ using the well-known port 53.
A) UDP
B) TCP
C) either a or b
D) none of the above

Chapter 18 Quiz

1)TELNET is an abbreviation for _____ .
A) terminal network
B) telephone network
C) telecommunication network
D) none of the above

2)TELNET is a _____ client-server application program.
A) specific-purpose
B) general-purpose
C) both a and b
D) none of the above

3)When a user logs into a local time-sharing system, it is called _____ login.
A) local
B) remote
C) temporary
D) none of the above

4)When a user wants to access an application program or utility located on a remote machine, he or she performs _____ login.
A) local
B) remote
C) temporary
D) none of the above

5)NVT uses two sets of characters, one for _____and one for _____.
A) sending; receiving
B) request; reply
C) data; control
D) none of the above

6)For data, NVT uses US ASCII characters with the highest order bit set to _____.
A) 1
B) 0
C) a or b
D) none of the above

7)For control, NVT uses US ASCII characters with the highest order bit set to _____.
A) 1
B) 0
C) a or b
D) none of the above

8)TELNET uses only one TCP connection. The server uses _____ port and the client uses _____ port.
A) a well-known; another well-known
B) an ephemeral; another ephemeral
C) a well-known; an ephemeral
D) none of the above

9)To distinguish data from control characters, each sequence of control characters is preceded by a special control character called _____.
A) ICA

B) IAC
C) AIC
D) none of the above

10)To make control characters effective in special situations, TELNET uses _____ signaling.
A) out-of-band
B) in-band
C) either a or b
D) none of the above

11)In the _____ mode, the echoing is done by the client.
A) default
B) character
C) line
D) none of the above

12)In the _____ mode, each character typed is sent by the client to the server.
A) default
B) character
C) line
D) none of the above

13)In the ____ mode, line editing (echoing, character erasing, line erasing, and so on) is done by the client.
A) default
B) character
C) line
D) none of the above

14)The _____ is software residing on the remote system that allows the remote system to receive characters from a TELNET server.
A) terminal driver
B) pseudoterminal driver
C) TELNET client
D) none of the above

15)The _____ translates local characters into NVT form.
A) terminal driver
B) TELNET client
C) TELNET server
D) none of the above

16)The _____ translates NVT characters into a form acceptable by the remote operating system.
A) terminal driver
B) TELNET client
C) TELNET server
D) none of the above

17)If the sender wants to disable an option, it sends a _____ command.
A) WILL
B) DO
C) WONT
D) none of the above

18)If the sender wants to enable an option, it sends a _____ command.

A) WILL
B) DO
C) WONT
D) none of the above

19)If the sender wants an option disabled by the receiver, it sends a _____ command.
A) WILL
B) DO
C) DONT
D) none of the above

20)If the sender wants an option enabled by the receiver, it sends a _____ command.
A) WILL
B) DO
C) WONT
D) none of the above

Chapter 19 Quiz

1)_____ is the standard mechanism provided by TCP/IP for copying a file from one host to another.
A) TELNET
B) SMTP
C) TFTP
D) none of the above

2)FTP uses the services of _____.
A) UDP
B) IP
C) TCP
D) none of the above

3)In FTP, the well-known port ____ is used for the control connection and the well-known port _____ for the data connection.
A) 21; 22
B) 21; 20
C) 20; 21
D) none of the above

4)In FTP, _____ is the service type used by the IP protocol because this is an interactive connection between a user (human) and a server.
A) maximize throughput
B) minimize delay
C) minimize error
D) none of the above

5)For control connection, FTP uses the _____ character set
A) regular ASCII
B) EBCDIC
C) NVT ASCII
D) none of the above

6)During an FTP session the control connection is opened _____.
A) exactly once
B) exactly twice
C) as many times as necessary
D) none of the above

7)During an FTP session the data connection is opened _____.
A) exactly once
B) exactly twice
C) as many times as necessary
D) none of the above

8)In FTP, a file can be organized into records, pages, or a stream of bytes. These are types of an attribute called _____.
A) file types
B) data structures
C) transmission modes
D) none of the above

9)In FTP, there are three types of _____: stream, block, and compressed.
A) file types
B) data structures
C) transmission modes
D) none of the above

10)In FTP, ASCII, EBCDIC, and image define an attribute called _____.
A) file type
B) data structure
C) transmission mode
D) none of the above

11)In FTP, which category of commands is used to store and retrieve files?
A) file transfer commands
B) access commands
C) file management commands
D) none of the above

12)In FTP, which category of commands defines the port number for the data connection on the client site?
A) file transfer commands
B) access commands
C) port defining commands
D) none of the above

13)In FTP, which category of commands sets the attributes (file type, data structure, and transmission modes) of a file to be transferred?
A) file transfer commands
B) access commands
C) data formatting commands
D) none of the above

14)In FTP, which category of commands lets a user switch directories and create or delete directories?
A) file transfer commands
B) access commands
C) file management commands
D) none of the above

15)In FTP, when we _____, it is copied from the server to the client.
A) retrieve a file
B) retrieve a list
C) a and c
D) none of the above

16)In FTP, when we _____, it is copied from the client to the server.
A) retrieve a file
B) store a file
C) retrieve a list
D) none of the above

17)TFTP uses the services of _____.
A) TCP
B) UDP
C) IP
D) none of the above

18)In TFTP, what type of message is sent in response to an RRQ that fails to establish a connection?
A) WRQ
B) DATA
C) ERROR
D) none of the above

19)In TFTP, what type of message is sent to establish a connection to retrieve a file?
A) RRQ
B) WRQ
C) DATA
D) none of the above

20)In TFTP, which type of message is always a set number of bytes?
A) RRQ
B) WRQ
C) ACK
D) none of the above

21)In TFTP, A DATA block is sent in response to a _____ message.
A) RRQ
B) ACK
C) a or b
D) none of the above

22)In TFTP, a connection is terminated with a _____ block.
A) DATA
B) ACK
C) ERROR
D) none of the above

23)An unauthorized user tries to send a file to a server using TFTP. What should be the response of the server?
A) ACK
B) ERROR
C) DATA
D) none of the above

24)In TFTP, the block number on a DATA message is 22. This always means _____.
A) there were 21 previous blocks
B) there were 20 previous blocks
C) this is the last block
D) none of the above

25)Which TFTP message contains a block number field?
A) DATA
B) ACK
C) a and b
D) none of the above

26)In TFTP, connection termination is signaled by a DATA message with _____ bytes.
A) any positive number of
B) 512
C) 0 to 511
D) all of the above

27)The flow-control mechanism in TFTP _____.
A) requires an ACK for every DATA message
B) is called sliding window
C) is nonexistent
D) none of the above

28)In TFTP, if a message is _____, it is resent.
A) damaged
B) lost
C) a and b
D) none of the above

29)In TFTP, if a duplicate DATA message is received, _____.
A) the sender sends an error message
B) the connection is terminated
C) the receiver discards the duplicate
D) none of the above

30)In TFTP, one symptom of the sorcererيs apprentice bug is that _____.
A) ACKS are duplicated
B) DATA messages are duplicated
C) a and b
D) none of the above

Chapter 20 Quiz

1)A _____ is part of a local hard drive, a special file with permission restrictions.
A) message
B) response
C) an agent
D) none of the above

2)When the sender and the receiver of an email are on the same system, we need only _____.
A) one UA
B) two UAs
C) one UA and one MTA
D) none of the above

3)When the sender and the receiver of an email are on different systems, we need only _____ _.
A) one MTA
B) two UAs
C) two UAs and one pair of MTAs
D) none of the above

4)When the sender is connected to the mail server via a LAN or a WAN, we need only _____ __.
A) two MTA
B) two UAs and two pairs of MTAs
C) two UAs and a pair of MTAs
D) none of the above

5)When both sender and receiver are connected to a mail server via a LAN or a WAN, we need _____
A) two UAs, two pairs of MTAs, and a pair of MAAs
B) two UAs, and two pairs of MTAs
C) two UAs, two pairs of MTAs, and two pairs of MAAs
D) none of the above

6)_____ provides service to the user to make the process of sending and receiving a message easier.
A) An MTA
B) An MAA
C) A UA
D) none of the above

7)Which of the following services is not provided by a UA?
A) composing messages
B) reading messages
C) replying messages
D) all are

8)There are two types of user agents: _____ and _____.
A) command-driven; data-driven
B) command-driven and GUI-based
C) command-based and data-based
D) none of the above

9)The _____ usually contains the sender address, the receiver address, and other information.
A) message
B) envelope
C) both a and b

D) none of the above
10)The message contains the _____ and the _____.
A) header; envelop
B) header; body
C) envelop; body
D) none of the above

11)In the Internet, the email address consists of two parts: a _____ and a _____.
A) local part; domain name
B) global part; domain name
C) label; domain name
D) none of the above

12)_____ is a supplementary protocol that allows non-ASCII data to be sent through email.
A) JPEG
B) MPEG
C) MIME
D) none of the above

13)The actual mail transfer is done through _____ .
A) UAs
B) MTAs
C) MAAs
D) none of the above

14)The formal protocol that defines the MTA client and server in the Internet is called _____.
A) SMTP
B) SNMP
C) TELNET
D) none of the above

15)The process of transferring a mail message occurs in _____ phases.
A) two
B) four
C) five
D) none of the above

16)SMTP is a _____protocol.
A) pull
B) push
C) both a and b
D) none of the above

17)The third stage in an email transfer needs a _____ protocol.
A) pull
B) push
C) both a and b
D) none of the above

18)The third stage in an email transfer uses a(n) _____ protocol.
A) UA
B) MTA
C) MAA
D) none of the above

19)Currently two message access protocols are available: _____ and _____.
A) POP3; IMAP2
B) POP4; IMAP1
C) POP3; IMAP4
D) none of the above

20)Which part of the mail created by the UA contains the sender and receiver names?
A) envelope
B) address
C) header
D) none of the above

21)In the _____ encoding scheme, 24 bits become 4 characters, and eventually are sent as 32 bits.
A) 8bit
B) binary
C) base64
D) none of the above

22)In the _____ encoding scheme, a non-ASCII character is sent as 3 characters.
A) 8bit
B) base64
C) quoted-printable
D) none of the above

23)This command identifies the recipient of the mail.
A) HELO
B) MAIL FROM
C) RCPT TO
D) none of the above

24)This command identifies the sender of the message.
A) HELO
B) MAIL FROM
C) RCPT TO
D) none of the above

25)The MIME _____ header uses text to describe the type of data in the body of the message.
A) content-type
B) content-transfer- encoding
C) content-description
D) none of the above

26)_____ is more powerful and complex than _____.
A) POP3; IMAP4
B) IMAP4; POP3
C) SMTP; POP3
D) none of the above

Chapter 22 Quiz

1)_____ is a repository of information linked together from points all over the world.
A) The WWW
B) HTTP
C) HTML
D) none of the above

2)The WWW today is a _____ client-server service, in which a client using a browser can access a service using a server.
A) limited
B) vast
C) distributed
D) none of the above

3)The _____ is a standard for specifying any kind of information on the Internet.
A) URL
B) ULR
C) RLU
D) none of the above

4)In a URL, the _____ is the client-server program used to retrieve the document.
A) path
B) protocol
C) host
D) none of the above

5)In a URL, the _____ is the computer on which the information is located.
A) path
B) protocol
C) host
D) none of the above

6)In a URL, an optional _____ can be inserted between the host and the path, and it is separated from the host by a colon.
A) path
B) protocol
C) host
D) none of the above

7)In a URL, the _____ is the full name of the file where the information is located.
A) path
B) protocol
C) host
D) none of the above

8)A cookie is made by the _____ and eaten by the _____.
A) client; client
B) client; server
C) server; server
D) none of the above

9)The documents in the WWW can be grouped into _____ broad categories.

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

10)A _____ document is a fixed-content document that is created and stored in a server. The client can get a copy of the document only.
A) static
B) dynamic
C) active
D) none of the above

11)_____ _ is a language for creating Web pages.
A) HTTP
B) HTML
C) FTTP
D) none of the above

12)A _____ document is created by a Web server whenever a browser requests the document.
A) static
B) dynamic
C) active
D) none of the above

13)_____ is a technology that creates and handles dynamic documents.
A) GIC
B) CGI
C) GCI
D) none of the above

14)Dynamic documents are sometimes referred to as _____ dynamic documents.
A) client-site
B) server-site
C) both a and b
D) none of the above

15)For many applications, we need a program or a script to be run at the client site. These are called _____ ___ documents.
A) static
B) dynamic
C) active
D) none of the above

16)One way to create an active document is to use _____.
A) CGI
B) Java stand-alone programs
C) Java applets.
D) none of the above

17)Active documents are sometimes referred to as _____ dynamic documents.
A) client-site
B) server-site
C) both a and b
D) none of the above

18)HTTP uses the services of _____ on well-known port 80.
A) UDP
B) IP
C) TCP
D) none of the above

19)In HTTP, the first line in a request message is called a _____ line; the first line in the response message is called the _____ line.
A) request; response
B) response; request
C) response; status
D) none of the above

20)In a _____ connection, one TCP connection is made for each request/response.
A) persistent
B) nonpersistent
C) both a and b
D) none of the above

21)In a _____connecti on, the server leaves the connection open for more requests after sending a response.
A) persistent
B) nonpersistent
C) both a and b
D) none of the above

22)HTTP version 1.1 specifies a _____connection by default.
A) persistent
B) nonpersistent
C) both a and b
D) none of the above

23)In HTTP, a _____ server is a computer that keeps copies of responses to recent requests.
A) regular
B) proxy
C) both a and b
D) none of the above

24)An HTTP request message always contains _____.
A) a header and a body
B) a request line and a header
C) a status line, a header, and a body
D) none of the above

25)Which of the following is present in both an HTTP request line and a status line?
A) HTTP version number
B) URL
C) status code
D) none of the above

26)The HTTP request line contains a _____ method to request a document from the server.
A) GET
B) POST

C) COPY
D) none of the above

27)A user needs to send the server some information. The request line method is _____.
A) OPTION
B) PATCH
C) POST
D) none of the above

28)The HTTP request line contains a _____ method to get information about a document without retrieving the document itself.
A) HEAD
B) POST
C) COPY
D) none of the above

29)A response message always contains _____.
A) a header and a body
B) a request line and a header
C) a status line and a header
D) none of the above

30)An applet is _____ document application program.
A) a static
B) an active
C) a passive
D) a dynamic

Chapter 23 Quiz

1)In ATM, end devices such as routers use all _____ layers, while switches inside the ATM network use only the bottom _____layers.
A) two; three
B) three; two
C) one; two
D) none of the above

2)The only AAL used by the Internet is _____.
A) AAL1
B) ALL3/4
C) AAL5
D) none of the above

3)AAL5 is sometimes called the _____.
A) SAL
B) SEAL
C) SEL
D) none of the above

4)AAL5 accepts an IP packet of no more than 65,536 bytes and adds _____ in addition to padding.
A) one trailer
B) one header
C) both a and b
D) none of the above

5)The _____ layer provides routing, traffic management, switching, and multiplexing services.
A) AAL
B) ATM
C) both a and b
D) none of the above

6)When we use IP over ATM, only the _____ cell carries the 8-byte trailer added to the IP datagram.
A) last
B) first
C) both a and b
D) none of the above

7)When we use IP over ATM, padding can be added only to the _____ or the _____.
A) first cell; last cell
B) last two cells; last three cells
C) last cell; last two cells
D) none of the above

8)To find the physical address of the exiting-point router, ATM uses the services of _____.
A) ARP
B) IP
C) ATMARP
D) none of the above

9)The inverse request and inverse reply messages can bind the physical address to an IP address in a(n) _____ situation.
A) SVC
B) PVC
C) both a and b
D) none of the above

10)The request and reply message can be used to bind a physical address to an IP address in a(n) _____ situation.
A) SVC
B) PVC
C) both a and b
D) none of the above

11)The inverse request and inverse reply can also be used to build the server _____ table.
A) mapping
B) routing
C) both a and b
D) none of the above

12)_____ allows an ATM network to be divided into several logical subnets.
A) LAS
B) LAN
C) LIS
D) none of the above

13)A router connected to an ATM network uses the _____ layers.
A) AAL and ATM
B) AAL and physical
C) AAL, ATM, and physical
D) none of the above

14)A switch inside an ATM network uses the _____ layers.
A) AAL and ATM
B) AAL and physical
C) ATM and physical
D) none of the above

15)Which ATM layer adds an 8-byte trailer to an IP packet?
A) AAL5
B) ATM
C) physical
D) none of the above

16)Which ATM layer has a 53-byte cell as an end product?
A) physical
B) ATM
C) AAL5
D) none of the above

17)The VPI of a UNI is _____ bits in length.
A) 8
B) 12
C) 16

D) none of the above

18)The VPI of an NNI is _____ bits in length.
A) 8
B) 12
C) 16
D) none of the above

19)The _____ field of the ATM header provides error control.
A) CLP
B) HEC
C) VPC
D) none of the above

20)A datagram of 1010 bytes needs _____ bytes of padding.
A) 0
B) 38
C) 46
D) 48

21)A datagram of 402 bytes is divided into _____ cells.
A) 6
B) 7
C) 9
D) none of the above

22)The maximum amount of padding that can be added is _____ bytes.
A) 0
B) 47
C) 48
D) none of the above

23)When a _____ exists between two routers on an ATM network, an ATMARP server is not needed.
A) permanent virtual circuit
B) switched virtual circuit
C) logical IP subnet
D) none of the above

24)What is the first step in establishing a virtual connection on an ATM network?
A) connecting to an ATMARP server
B) connecting to the exiting-point router
C) formation of a logical IP subnet
D) none of the above

25)How can two routers be connected on an ATM network?
A) through a PVC
B) through an SVC
C) a and b
D) none of the above

Chapter 24 Quiz

1)The main problem that must be solved in providing mobile communication using the IP protocol is _____
A) connecting
B) forwarding
C) addressing
D) none of the above

2)The original IP addressing was based on the assumption that a host is _____.
A) stationary
B) mobile
C) moving
D) none of the above

3)The IP addresses are designed to work with _____ hosts because part of the address defines the network to which the host is attached.
A) stationary
B) mobile
C) moving
D) none of the above

4)A mobile host normally uses two addresses. The host has its original address, called the _____ address and a temporary address, called the _____address.
A) care-of; home
B) home; care-of
C) home; foreigner
D) none of the above

5)The home address is _____.
A) temporary
B) permanent
C) both a and b
D) none of the above

6)The care-of address is _____.
A) temporary
B) permanent
C) both a and b
D) none of the above

7)The _____ is usually a router attached to the home network of the mobile host.
A) foreign agent
B) home agent
C) both a and b
D) none of the above

8)The _____ acts on behalf of the mobile host when a remote host sends a packet to the mobile host.
A) home agent
B) foreign agent
C) either a or b
D) none of the above

9)When the mobile host acts as a foreign agent, the care-of address is called a _____ care-of address.
A) common
B) shared
C) co-located
D) none of the above

10)To communicate with a remote host, a mobile host goes through _____ phases.
A) three
B) two
C) four
D) none of the above

11)The first phase in mobile communication is called _____.
A) registration
B) agent discovery
C) data transfer
D) none of the above

12)The second phase in mobile communication is called _____.
A) registration
B) agent discovery
C) data transfer
D) none of the above

13)The third phase in mobile communication is called _____.
A) registration
B) agent discovery
C) data transfer
D) none of the above

14)Mobile IP uses the router advertisement packet of _____ and appends an agent advertisement message.
A) IGMP
B) IP
C) ICMP
D) none of the above

15)A registration request or reply is sent by _____ using the well-known port 434.
A) TCP
B) IP
C) UDP
D) none of the above

16)_____ occurs when a remote host communicates with a mobile host that has moved to the same network (or site) as the remote host.
A) Triple crossing
B) Double crossing
C) Triangle routing
D) none of the above

17)_____ occurs when the remote host communicates with a mobile host that is not attached to the same network (or site) as the mobile host.
A) Triple crossing
B) Double crossing

C) Triangle routing
D) none of the above

18)In the _____ phase, a mobile host must learn the address of its home agent.
A) agent discovery
B) registration
C) data transfer
D) none of the above

19)In the _____ phase, a mobile host must learn the address of its foreign agent.
A) agent discovery
B) registration
C) data transfer
D) none of the above

20)If a router acts as an agent, it advertises its presence in a network by appending an agent _____ message to an ICMP router advertisement.
A) solicitation
B) advertisement
C) discovery
D) none of the above

21)A mobile host can send an agent _____ message if it has not received any agent advertisements.
A) solicitation
B) discovery
C) registration
D) none of the above

22)When a mobile host wants to register with its foreign agent, it sends _____ message.
A) an agent solicitation
B) an agent advertisement
C) a registration request
D) none of the above

23)The registration reply is sent by the _____ agent to the foreign agent.
A) home
B) care-of
C) discovery
D) none of the above

24)The _____ uses a registry table to find the care-of address of the mobile host.
A) home agent
B) foreign agent
C) remote host
D) none of the above

Chapter 25 Quiz

1)We can divide audio and video services into _____ broad categories.
A) three
B) two
C) four
D) none of the above

2)_____ audio/video refers to on-demand requests for compressed audio/video files.
A) Streaming live
B) Streaming stored
C) Interactive
D) none of the above

3)_____ audio/video refers to the broadcasting of radio and TV programs through the Internet.
A) Interactive
B) Streaming live
C) Streaming stored
D) none of the above

4)_____ audio/video refers to the use of the Internet for interactive audio/video applications.
A) Interactive
B) Streaming live
C) Streaming stored
D) none of the above

5)According to the Nyquist theorem, we need to sample an analog signal _____times the highest frequency.
A) three
B) two
C) four
D) none of the above

6)In __ encoding, the differences between the samples are encoded instead of encoding all the sampled values.
A) predictive
B) perceptual
C) both a and b
D) none of the above

7)____ encoding is based on the science of psychoacoustics, which is the study of how people perceive sound.
A) Predictive
B) Perceptual
C) both a and b
D) none of the above

8)_____ is used to compress images.
A) MPEG
B) JPEG
C) either a or b
D) none of the above

9)_____ is used to compress video.
A) MPEG
B) JPEG
C) either a or b
D) none of the above

10)The first phase of JPEG is _____.
A) DCT transformation
B) quantization
C) data compression
D) none of the above

11)The second phase of JPEG is _____.
A) DCT transformation
B) quantization
C) data compression
D) none of the above

12)The third phase of JPEG is _____.
A) DCT transformation
B) quantization
C) data compression
D) none of the above

13)Jitter is introduced in real-time data by the _____ ___.
A) error caused during transmission
B) delay between packets
C) both a and b
D) none of the above

14)To prevent _____, we can timestamp the packets and separate the arrival time from the playback time.
A) error
B) jitter
C) either a or b
D) none of the above

15)A _____buffer is required for real-time traffic.
A) playback
B) reordering
C) sorting
D) none of the above

16)A _____on each packet is required for real-time traffic.
A) timestamp
B) sequence number
C) both a and b
D) none of the above

17)Real-time traffic needs the support of _____ .
A) broadcasting
B) multicasting
C) both a and b
D) none of the above

18)_____ means changing the encoding of a payload to a lower quality to match the bandwidth of the receiving network.
A) Translation
B) Mixing
C) both a and b
D) none of the above

19)_____ means combining several streams of traffic into one stream.
A) Translation
B) Mixing
C) both a and b
D) none of the above

20)_____ is not suitable for interactive multimedia traffic because it retransmits packets in case of errors.
A) UDP
B) TCP
C) both a and b
D) none of the above

21)_____ is the protocol designed to handle real-time traffic on the Internet.
A) TCP
B) UDP
C) RTP
D) none of the above

22)RTP uses a temporary even-numbered _____ port.
A) UDP
B) TCP
C) both a and b
D) none of the above

23)_____ is a protocol for controlling the flow and quality of data.
A) RTP
B) RTCP
C) UDP
D) none of the above

24)RTCP uses an odd-numbered _____ port number that follows the port number selected for RTP.
A) UDP
B) TCP
C) both a and b
D) none of the above

25)_____ is an application protocol that establishes, manages, and terminates a multimedia session
A) RIP
B) SIP
C) DIP
D) none of the above

26)_____ is a standard to allow telephones on the public telephone network to talk to computers connected to the Internet.
A) SIP
B) H.323

C) Q.991
D) none of the above

27)A real-time video performance lasts 10 min. If there is jitter in the system, the viewer spends _____ minutes watching the performance.
A) less than 10
B) more than 10
C) exactly 10
D) none of the above

28)A _____ shows the time a packet was produced relative to the first or previous packet.
A) timestamp
B) playback buffer
C) sequence number
D) none of the above

29)_____ are used to number the packets of a real-time transmission.
A) Timestamps
B) Playback buffers
C) Sequence numbers
D) none of the above

30)In a real-time video conference, data from the server is _____ to the client sites.
A) unicast
B) multicast
C) broadcast
D) none of the above

31)A _____ adds signals from different sources to create a single signal.
A) timestamp
B) sequence number
C) mixer
D) none of the above

32)A _____ changes the format of a high-bandwidth video signal to a lower quality narrow-bandwidth signal.
A) timestamp
B) sequence number
C) translator
D) none of the above

33)An RTP packet is encapsulated in _____.
A) a UDP user datagram
B) a TCP segment
C) an IP datagram
D) none of the above

34)When there is more than one source, the _____ identifier defines the mixer.
A) synchronization source
B) contributor
C) timestamp
D) none of the above

Chapter 26 Quiz

1)Private networks, hybrid networks, and virtual private networks can provide _____ for organizations
A) efficiency
B) privacy
C) a and b
D) none of the above

2)Both private and hybrid networks have a major drawback: _____.
A) lack of privacy
B) cost
C) both a and b
D) none of the above

3)A _____ network allows an organization to have its own private internet and, at the same time, access the global Internet.
A) private
B) public
C) hybrid
D) none of the above

4)When an organization uses a private network, it _____ ___.
A) needs to obtain a block of addresses from the Internet authorities
B) can use a block of addresses without permission from the Internet authorities
C) needs to register the block of addresses being used.
D) none of the above

5)VPN is a network that is _____ but _____.
A) private; public
B) private; virtual
C) public; virtual
D) none of the above

6)A VPN is physically _____ but virtually _____.
A) public; private
B) private; public
C) public; hybrid
D) none of the above

7)VPN technology uses two simultaneous techniques to guarantee privacy for an organization: _____ and _____.
A) SSL; tunneling
B) IPSec; SSL
C) IPSec; tunneling
D) none of the above

8)_____ means that each IP datagram destined for private use in the organization must be encapsulated in another datagram.
A) Multicasting
B) Broadcasting
C) Tunneling
D) none of the above

9)_____ technology allows a site to use a set of private addresses for internal communication and a set of global Internet addresses for communication with another site.
A) VPN
B) NAT
C) both a and b
D) none of the above

10)Using _____, all of the outgoing packets go through the corresponding router, which replaces the source address in the packet with the appropriate global address.
A) VPN
B) NAT
C) both a and b
D) none of the above

11)An _____ is a private network with no external access that uses the TCP/IP protocol suite.
A) extranet
B) internet
C) intranet
D) none of the above

12)An _____ is a private network with limited external access that uses the TCP/IP protocol suite.
A) extranet
B) internet
C) intranet
D) none of the above

13)A _____ network is totally isolated from the global Internet.
A) private
B) hybrid
C) virtual private
D) none of the above

14)A _____ network can use a leased line for intraorganization communication and the Internet for interorganization communication.
A) private
B) hybrid
C) virtual private
D) none of the above

15)A VPN can use _____ to guarantee privacy.
A) IPSec
B) tunneling
C) both a and b
D) none of the above

16)Tunneling is a technique in which the IP datagram is first _____ and then _____.
A) encapsulated in another datagram; encrypted
B) encrypted; encapsulated in another datagram
C) authenticated; encrypted
D) encrypted; authenticated

17)_____ is a technology using a set of global Internet addresses and a set of private addresses.

A) VPN
B) ISP
C) NAT
D) none of the above

18)On a network that uses NAT, the _____ has a translation table.
A) bridge
B) router
C) server
D) none of the above

19)On a network that uses NAT, _____ initiates the communication.
A) an external host
B) an internal host
C) the router
D) none of the above

20)On a network that uses NAT, the router can use _____ global address(es).
A) 1
B) 2
C) a pool of
D) none of the above

Chapter 27 Quiz

1)An IPv6 address is _____ bits long.
A) 32
B) 64
C) 128
D) none of the above

2)In IPv6, options are inserted between the _____ and the _____ data.
A) base header; extension header
B) base header; upper-layer data
C) base header; frame header
D) none of the above

3)IPv6 allows _____ security provisions than IPv4.
A) more
B) less
C) the same level
D) none of the above

4)An IPv6 address consists of _____ bytes (octets);
A) 4
B) 8
C) 16
D) none of the above

5)To make addresses more readable, IPv6 specifies _____ notation.
A) dotted decimal
B) hexadecimal colon
C) both a and b
D) none of the above

6)In hexadecimal colon notation, a 128-bit address is divided into _____ sections, each _____ hexadecimal digits in length.
A) 8: 2
B) 8: 3
C) 8: 4
D) none of the above

7)An IPv6 address can have up to _____ colons.
A) 8
B) 7
C) 4
D) none of the above

8)An IPv6 address can have up to _____ hexadecimal digits.
A) 16
B) 32
C) 8
D) none of the above

9)If an IPv6 address has digits of _____, we can abbreviate the address.
A) 1s
B) Fs

C) 0s
D) none of the above
10)In IPv6, _____ address defines a single computer.
A) a unicast
B) a multicast
C) an anycast
D) none of the above

11)In IPv6, ____ address defines a group of computers with addresses that have the same prefix.
A) a unicast
B) a multicast
C) an anycast
D) none of the above

12)_____ address defines a group of computers.
A) A unicast
B) A multicast
C) An anycast
D) none of the above

13)In IPv6, the _____ prefix defines the purpose of the address.
A) type
B) purpose
C) both a and b
D) none of the above

14)In IPv6, the_____ __ address is generally used by a normal host as a unicast address.
A) provider-based unicast
B) link local
C) site local
D) none of the above

15)A _____ address comprises 80 bits of zero, followed by 16 bits of one, followed by the 32-bit IPv4 address.
A) link local
B) site local
C) mapped
D) none of the above

16)A _____ address is an address of 96 bits of zero followed by 32 bits of IPv4 address.
A) link local
B) site local
C) mapped
D) none of the above

17)A _____ address is used if a LAN uses the Internet protocols but is not connected to the Internet for security reasons.
A) link local
B) site local
C) mapped
D) none of the above

18)The _____ address is used if a site with several networks uses the Internet protocols but is not connected to the Internet for security reasons.
A) link local

B) site local
C) mapped
D) none of the above

19)Which of the following is a necessary part of the IPv6 datagram?
A) base header
B) data packet from the upper layer
C) a and b
D) none of the above

20)The _____ field in the base header restricts the lifetime of a datagram.
A) version
B) priority
C) hop limit
D) none of the above

21)When a datagram needs to be discarded in a congested network, the decision is based on the _____ field in the base header.
A) hop limit
B) priority
C) next header
D) none of the above

22)The _____ field in the base header and the sender IP address combine to indicate a unique path identifier for a specific flow of
data.
A) flow label
B) next header
C) hop limit
D) none of the above

23)In the _____ extension header, the destination address changes from router to router.
A) source routing
B) fragmentation
C) authentication
D) payload

24)To request the physical address of a host whose IP address is known, a _____ message is sent.
A) membership-query
B) router-solicitation
C) neighbor-solicitati on
D) neighbor-advertisem ent

25)If a host needs information about routers on the network, it sends a _____ message.
A) membership-report
B) router-solicitation
C) neighbor-solicitati on
D) neighbor-advertisem ent

26)The ARP function in version 4 is part of _____ in version 6.
A) echo request and reply
B) router solicitation and advertisement
C) neighbor solicitation and advertisement
D) none of the above

27)The IGMP functions in version 4 are part of _____ in version 6.
A) echo request and reply
B) router solicitation and advertisement
C) group membership
D) none of the above

28)To join a group, a host sends a _____.
A) group-membership report
B) group-membership query
C) group-membership termination
D) none of the above

29)The purpose of echo request and echo reply is to _____.
A) report errors
B) check node-to-node communication
C) check group memberships
D) none of the above

30)A router sends a _____ message to the host to monitor group membership.
A) report
B) query
C) termination
D) none of the above

31)In error reporting the encapsulated ICMP packet goes to _____.
A) the source
B) the destination
C) a router
D) none of the above

32)In error reporting, a destination can send a _____ message if an option is not recognized.
A) parameter-problem
B) packet-too-big
C) time-exceeded
D) none of the above

33)An MTU field is found on the _____ error message to inform the sender about packet size.
A) destination- unreachable
B) time-exceeded
C) parameter-problem
D) none of the above

34)When the hop count field reaches zero and the destination has not been reached, a _____ error message is sent.
A) destination- unreachable
B) time-exceeded
C) parameter-problem
D) none of the above

35)When all fragments of a message have not been received within the designated amount of time, a _____ error message is sent.
A) destination- unreachable

B) time-exceeded
C) parameter-problem
D) none of the above

36)Errors in the header or option fields of an IP datagram require a _____ error message.
A) destination- unreachable
B) time-exceeded
C) parameter-problem
D) none of the above

37)If a member of a group wishes to terminate membership, it can _____ in response to a group membership query.
A) send a group membership report
B) send a group membership termination
C) send a group membership query
D) none of the above

38)In version 6, an independent protocol called _____ is eliminated.
A) ICMP
B) IP
C) IGMP
D) none of the above

39)The _____ packet contains information about a router.
A) router solicitation
B) router information
C) router advertisement
D) none of the above

40)When a host has the _____ address of a host but needs the _____ address, it uses a neighbor solicitation packet.
A) physical; protocol port
B) physical; data link layer
C) IP; physical
D) none of the above

41)A router can send a _____ message to a host to inform it of a more efficient path.
A) neighbor-solicitati on
B) router-solicitation
C) redirection
D) none of the above

42)Which version 4 protocols are still viable and known by their same names in version 6?
A) IGMP
B) ARP
C) RARP
D) none of the above

43)Which error-reporting message from version 4 has been eliminated in version 6?
A) packet too big
B) destination unreachable
C) source quench
D) none of the above

44)Which error-reporting message is found in version 6 but not in version 4?

A) packet too big
B) destination unreachable C) parameter problem
D) none of the above

Chapter 28 Quiz

1)In cryptography, the encryption/decrypti on algorithms are _____; the keys are _____.
A) secret; public
B) public; secret
C) secret; secret
D) none of the above

2)In _____cryptogra phy, the same key is used by the sender (for encryption) and the receiver (for decryption).
A) symmetric-key
B) asymmetric-key
C) public-key
D) none of the above

3)In _____ cryptography, the same key is used in both directions.
A) symmetric-key
B) asymmetric-key
C) public-key
D) none of the above

4)The DES cipher uses the same concept as the _____ cipher, but the encryption/ decryption algorithm is much more complex.
A) RSA
B) AES
C) Caesar
D) none of the above

5)_____ cryptography is often used for long messages.
A) Symmetric-key
B) Asymmetric-key
C) Public-key
D) none of the above

6)_____ algorithms are more efficient for short messages.
A) Symmetric-key
B) Asymmetric-key
C) Public-key
D) none of the above

7)_____means that the sender and the receiver expect confidentiality.
A) Non-repudiation
B) Integrity
C) Authentication
D) none of the above

8)_____ means that the data must arrive at the receiver exactly as they were sent.
A) Non-repudiation
B) Message integrity
C) Authentication
D) none of the above

9)_____ __ means that the receiver needs to be sure of the sender identity and that an imposter has not sent the message.
A) Non-repudiation
B) Message integrity
C) Message authentication
D) none of the above

10)_____ __ can provide authentication, integrity, and nonrepudiation for a message.
A) Encryption/decrypti on
B) Digital signature
C) Compression
D) none of the above

11)Digital signature does not provide _____.
A) non-repudiation
B) privacy
C) authentication
D) provides all of the above

12)In _____, the entity identity is verified once for the entire duration of system access.
A) entity authentication
B) message integrity
C) message authentication
D) none of the above

13)The symmetric (shared) key in the Diffie-Hellman protocol is _____ .
A) K = Gxy mod N
B) K = Gx mod N
C) K = Gy mod N
D) none of the above

14)In _____ cryptography, everyone has access to everyoneچs public key.
A) symmetric-key
B) asymmetric-key
C) both a and b
D) none of the above

15)_____servers are involved in the Kerberos protocol.
A) Two
B) Three
C) Four
D) none of the above

16)n Kerberos, the _____ is the KDC.
A) AS
B) TGS
C) real server
D) none of the above

17)In Kerberos, the _____ issues the ticket for the real server.
A) AS
B) TGS
C) real server
D) none of the above

18) In Kerberos, the _____ provides services for the entity.
A) AS
B) TGS
C) real server
D) none of the above

19) Kerberos allows the global distribution of ASs and TGSs, with each system called a _____
A) server
B) realm
C) client
D) none of the above

20)IP Security (IPSec) is a collection of protocols designed by the IETF (Internet Engineering Task Force) to provide security for a packet at the _____ level.
A) data link
B) network
C) transport
D) none of the above

21) IPSec requires a logical connection between two hosts using a signaling protocol called _____ .
A) AS
B) SA
C) AS
D) none of the above

22) IPSec operates at two different modes: _____ mode and _____mode.
A) transport; network
B) transport; tunnel
C) tunnel; surface
D) none of the above

23) In the _____ mode, the IPSec header is added between the IP header and the rest of the packet.
A) transport
B) tunnel
C) both a and b
D) none of the above

24)In the _____ mode, the IPSec header is placed in front of the original IP header.
A) transport
B) tunnel
C) both a and b
D) none of the above

25) IPSec defines two protocols: _____ and _____.
A) AH: SSP
B) ESP; SSP
C) AH: EH
D) none of the above

26) The _____ protocol is designed to authenticate the source host and to ensure the integrity of the payload carried by the IP packet.
A) AH
B) ESP

C) both a and b
D) none of the above

27) The _____ protocol provides message authentication and integrity, but not privacy.
A) AH
B) ESP
C) both a and b
D) none of the above

28) The _____ protocol provides message authentication, integrity, and privacy.
A) AH
B) ESP
C) both a and b
D) none of the above

29) The _____ was designed to provide security at the transport layer.
A) AH
B) ESP
C) TLS
D) none of the above

30) _____ was invented by Phil Zimmermann to provide all four aspects of security in the sending of email.
A) AH
B) ESP
C) TLS
D) none of the above

31) A packet-filter firewall filters at the _____ or _____ layer.
A) network; application
B) transport; application
C) network; transport
D) none of the above

32) A proxy firewall filters at the _____ layer.
A) transport
B) network
C) application
D) none of the above

33) Before a message is encrypted, it is called _____.
A) plaintext
B) ciphertext
C) cryptotext
D) none of the above

34)After a message is encrypted, it is called _____.
A) plaintext
B) ciphertext
C) cryptotext
D) none of the above

35) If 20 people need to communicate using symmetric-key cryptography, _____ symmetric keys are

needed.
A) 19
B) 20
C) 190
D) 200

36) In the asymmetric-key method of cryptography, which key is publicly known?
A) encryption key only
B) decryption key only
C) both
D) none of the above

37) In the asymmetric-key method of cryptography, the receiver has possession of the _____.
A) private key
B) public key
C) both keys
D) none of the above

38) The RSA algorithm uses _____ cryptography method.
A) an asymmetric-key
B) a private-key
C) a symmetric-key
D) none of the above

39)If user A wants to send an encrypted message to user B, the plaintext is encrypted with the public key of __
A) user A
B) user B
C) the network
D) none of the above

40) In the digital signature technique when the whole message is signed using an asymmetric key, the sender of the message uses _____ to sign the message.
A) his or her own symmetric key
B) his or her own private key
C) his or her own public key
D) none of the above

41) In the digital signature technique when the whole message is signed using an asymmetric key, the receiver of the message uses _____ to verify the signature.
A) her or his own symmetric key
B) her or his own private key
C) the senderي‌s public key
D) none of the above

42) A _____ is a trusted third party that solves the problem of symmetric-key distribution.
A) CA
B) KDC
C) TLS
D) firewall

43)A _____ certifies the binding between a public key and its owner.
A) CA
B) KDC
C) TLS

D) none of the above

44) In a _____ attack, a message captured by an intruder is illegally sent a second time.
A) return
B) man-in-the-middle
C) replay
D) none of the above

45) A _____ is a large number used only once that helps distinguish a fresh authentication request from a repeated one.
A) ticket
B) nonce
C) realm
D) none of the above

46) In the _____ protocol, the symmetric key is K = Gxy mod N, where G and N are public numbers.
A) Diffie-Hellman
B) Needham-Schroeder
C) Otway-Rees
D) none of the above

47) In a _____ attack, an intruder comes between two communicating parties, intercepting and replying to their messages.
A) ciphertext
B) man-in-the-middle
C) replay
D) none of the above

48) _____ is an authentication protocol that needs an authentication server and a ticket-granting server.
A) Diffie-Hellman
B) Needham-Schroeder
C) Kerberos
D) none of the above