CCNA 1 v7.0 Modules 14 – 15: Network Application Communications Exam Answers 2020

1. Which action is performed by a client when establishing communication with a server via the use of UDP at the transport layer?

The client sets the window size for the session.
The client sends an ISN to the server to start the 3-way handshake.
The client randomly selects a source port number.*
The client sends a synchronization segment to begin the session.

2. Which transport layer feature is used to guarantee session establishment?

UDP ACK flag
TCP 3-way handshake*
UDP sequence number
TCP port number

3. What is the complete range of TCP and UDP well-known ports?

0 to 255
0 to 1023*
256 – 1023
1024 – 49151

4. What is a socket?

the combination of the source and destination IP address and source and destination Ethernet address
the combination of a source IP address and port number or a destination IP address and port number*
the combination of the source and destination sequence and acknowledgment numbers
the combination of the source and destination sequence numbers and port numbers

5. A PC is downloading a large file from a server. The TCP window is 1000 bytes. The server is sending the file using 100-byte segments. How many segments will the server send before it requires an acknowledgment from the PC?

1 segment
10 segments*
100 segments
1000 segments

6. Which factor determines TCP window size?

the amount of data to be transmitted
the number of services included in the TCP segment
the amount of data the destination can process at one time*
the amount of data the source is capable of sending at one time

Explanation: Window is the number of bytes that the sender will send prior to expecting an acknowledgement from the destination device. The initial window is agreed upon during the session startup via the three-way handshake between source and destination. It is determined by how much data the destination device of a TCP session is able to accept and process at one time.

7. What does a client do when it has UDP datagrams to send?

It just sends the datagrams.*
It queries the server to see if it is ready to receive data.
It sends a simplified three-way handshake to the server.
It sends to the server a segment with the SYN flag set to synchronize the conversation.

Explanation: When a client has UDP datagrams to send, it just sends the datagrams.

8. Which three fields are used in a UDP segment header? (Choose three.)

Window Size
Length*
Source Port*
Acknowledgment Number
Checksum*
Sequence Number

Explanation: A UDP header consists of only the Source Port, Destination Port, Length, and Checksum fields. Sequence Number, Acknowledgment Number, and Window Size are TCP header fields.

9. What are two roles of the transport layer in data communication on a network? (Choose two.)

identifying the proper application for each communication stream
tracking the individual communication between applications on the source and destination hosts*

providing frame delimiting to identify bits making up a frame
performing a cyclic redundancy check on the frame for errors
providing the interface between applications and the underlying network over which messages are transmitted

Explanation: The transport layer has several responsibilities. The primary responsibilities include the following:
Tracking the individual communication streams between applications on the source and destination hosts
Segmenting data at the source and reassembling the data at the destination
Identifying the proper application for each communication stream through the use of port numbers

10. What information is used by TCP to reassemble and reorder received segments?

port numbers
sequence numbers*
acknowledgment numbers
fragment numbers

11. What important information is added to the TCP/IP transport layer header to ensure communication and connectivity with a remote network device?

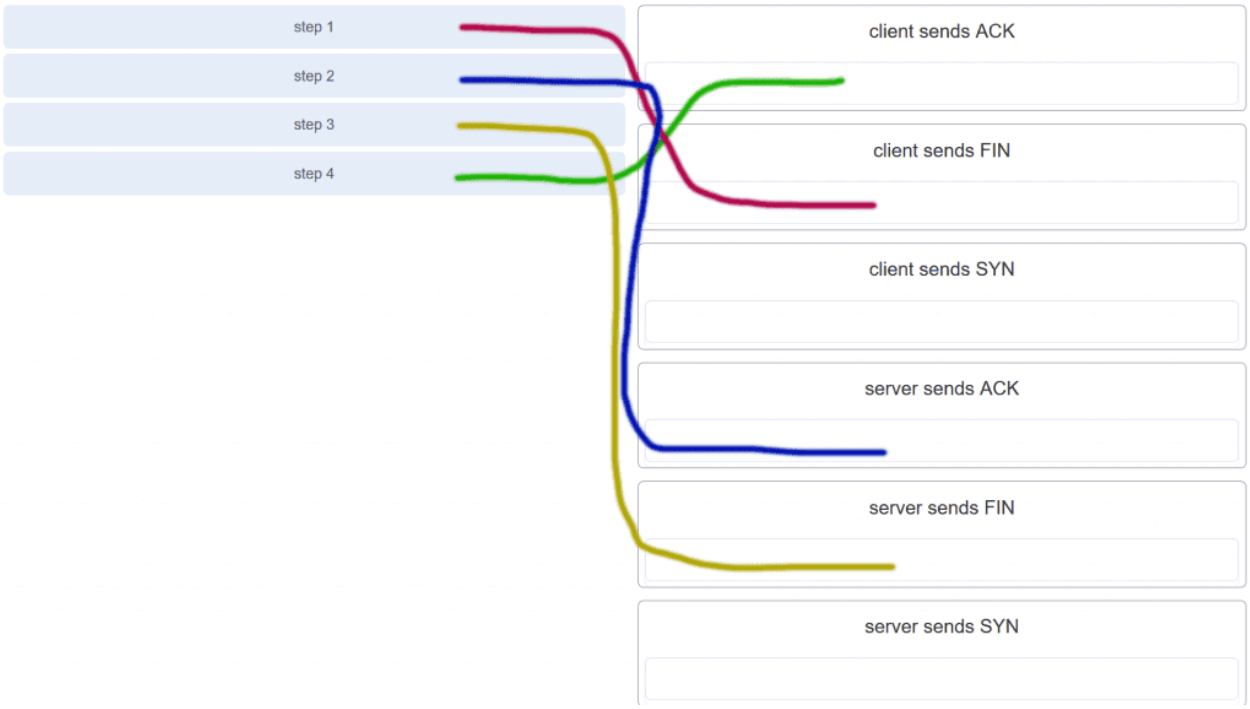
timing and synchronization
destination and source port numbers*
destination and source physical addresses
destination and source logical network addresses

12. Which two characteristics are associated with UDP sessions? (Choose two.)

Destination devices receive traffic with minimal delay.*
Transmitted data segments are tracked.
Destination devices reassemble messages and pass them to an application.
Received data is unacknowledged.*
Unacknowledged data packets are retransmitted.

Explanation:
TCP:
Provides tracking of transmitted data segments
Destination devices will acknowledge received data.
Source devices will retransmit unacknowledged data.
UDP
Destination devices will not acknowledge received data
Headers use very little overhead and cause minimal delay.

13. A client application needs to terminate a TCP communication session with a server. Place the termination process steps in the order that they will occur. (Not all options are used.)



14. Which flag in the TCP header is used in response to a received FIN in order to terminate connectivity between two network devices?

FIN
ACK*
SYN
RST

15. Which protocol or service uses UDP for a client-to-server communication and TCP for server-to-server communication?

HTTP
FTP
DNS*
SMTP

Explanation: Some applications may use both TCP and UDP. DNS uses UDP when clients send requests to a DNS server, and TCP when two DNS serves directly communicate.

16. What is a characteristic of UDP?

UDP datagrams take the same path and arrive in the correct order at the destination.
Applications that use UDP are always considered unreliable.
UDP reassembles the received datagrams in the order they were received.*
UDP only passes data to the network when the destination is ready to receive the data.

Explanation: UDP has no way to reorder the datagrams into their transmission order, so UDP simply reassembles the data in the order it was received and forwards it to the application.

17. What kind of port must be requested from IANA in order to be used with a specific application?

registered port*
private port
dynamic port
source port

Explanation: Registered ports (numbers 1024 to 49151) are assigned by IANA to a requesting entity to use with specific processes or applications. These processes are primarily individual applications that a user has chosen to install, rather than common applications that would receive a well-known port number. For example, Cisco has registered port 1985 for its Hot Standby Routing Protocol (HSRP) process.

18. Which three application layer protocols use TCP? (Choose three.)

SMTP*
FTP*
SNMP
HTTP*
TFTP
DHCP

Explanation: Some protocols require the reliable data transport that is provided by TCP. In addition, these protocols do not have real time communication requirements and can tolerate some data loss while minimizing protocol overhead. Examples of these protocols are SMTP, FTP, and HTTP.

19. Which three statements characterize UDP? (Choose three.)

UDP provides basic connectionless transport layer functions.*
UDP provides connection-oriented, fast transport of data at Layer 3.
UDP relies on application layer protocols for error detection.*
UDP is a low overhead protocol that does not provide sequencing or flow control mechanisms.*
UDP relies on IP for error detection and recovery.
UDP provides sophisticated flow control mechanisms.

20. Which two fields are included in the TCP header but not in the UDP header? (Choose two.)

Window*
checksum
source port
destination port
sequence number*

Explanation: The sequence number and window fields are included in the TCP header but not in the UDP header.

21. Which field in the TCP header indicates the status of the three-way handshake process?

window
reserved
checksum
control bits*

Explanation: The value in the control bits field of theTCP header indicates the progress and status of the connection.

22. Why does HTTP use TCP as the transport layer protocol?

to ensure the fastest possible download speed
because HTTP is a best-effort protocol
because transmission errors can be tolerated easily
because HTTP requires reliable delivery*

23. Which two types of applications are best suited for UDP? (Choose two.)

applications that need data flow control
applications that require reliable delivery
applications that handle reliability themselves*
applications that need the reordering of segments
applications that can tolerate some data loss, but require little or no delay*

24. How are port numbers used in the TCP/IP encapsulation process?

Source port numbers and destination port numbers are not necessary when UDP is the transport layer protocol being used for the communication.
Source port and destination port numbers are randomly generated.
If multiple conversations occur that are using the same service, the source port number is used to track the separate conversations.*
Destination port numbers are assigned automatically and cannot be changed.
Explanation: Both UDP and TCP use port numbers to provide a unique identifier for each conversation. Source port numbers are randomly generated and are used to track different conversations. Destination port numbers identify specific services by using either a default port number for the service or a port number that is assigned manually by a system administrator.

25. In what two situations would UDP be better than TCP as the preferred transport protocol? (Choose two.)

when applications need to guarantee that a packet arrives intact, in sequence, and unduplicated
when a faster delivery mechanism is needed*
when delivery overhead is not an issue
when applications do not need to guarantee delivery of the data*
when destination port numbers are dynamic
Explanation: UDP is a very simple transport layer protocol that does not guarantee delivery. Devices on both ends of the conversation are not required to keep track of the conversation. UDP is used as the transport protocol for applications that need a speedy, best-effort delivery.

26. What are three responsibilities of the transport layer? (Choose three.)

meeting the reliability requirements of applications, if any*
multiplexing multiple communication streams from many users or applications on the same network*
identifying the applications and services on the client and server that should handle transmitted data*
directing packets towards the destination network
formatting data into a compatible form for receipt by the destination devices
conducting error detection of the contents in frames

27. Which three statements describe a DHCP Discover message? (Choose three.)

The source MAC address is 48 ones (FF-FF-FF-FF-FF-FF).
The destination IP address is 255.255.255.255.*
The message comes from a server offering an IP address.
The message comes from a client seeking an IP address.*
All hosts receive the message, but only a DHCP server replies.*
Only the DHCP server receives the message.
Explanation: When a host configured to use DHCP powers up on a network it sends a DHCPDISCOVER message. FF-FF-FF-FF-FF-FF is the L2 broadcast address. A DHCP server replies with a unicast DHCPOFFER message back to the host.

28. Which two protocols may devices use in the application process that sends email? (Choose two.)

HTTP
SMTP*
POP
IMAP
DNS*
POP3

29. What is true about the Server Message Block protocol?

Different SMB message types have a different format.
Clients establish a long term connection to servers.*
SMB messages cannot authenticate a session.
SMB uses the FTP protocol for communication.
Explanation: The Server Message Block protocol is a protocol for file, printer, and directory sharing. Clients establish a long term connection to servers and when the connection is active, the resources can be accessed. Every SMB message has the same format. The use of SMB differs from FTP mainly in the length of the sessions. SMB messages can authenticate sessions.

30. What is the function of the HTTP GET message?

to request an HTML page from a web server*
to send error information from a web server to a web client
to upload content to a web server from a web client
to retrieve client email from an email server using TCP port 110

31. Which OSI layer provides the interface between the applications used to communicate and the underlying network over which messages are transmitted?

Application*
presentation

session
transport

32. Which networking model is being used when an author uploads one chapter document to a file server of a book publisher?

peer-to-peer
master-slave
client/server*
point-to-point

Explanation: In the client/server network model, a network device assumes the role of server in order to provide a particular service such as file transfer and storage. In the client/server network model, a dedicated server does not have to be used, but if one is present, the network model being used is the client/server model. In contrast, a peer-to-peer network does not have a dedicated server.

33. What do the client/server and peer-to-peer network models have in common?

Both models have dedicated servers.
Both models support devices in server and client roles.*
Both models require the use of TCP/IP-based protocols.
Both models are used only in the wired network environment.

Explanation: In both the client/server and peer-to-peer network models, clients and servers exist. In peer-to-peer networks, no dedicated server exists, but a device can assume the server role to provide information to a device serving in the client role.

34. In what networking model would eDonkey, eMule, BitTorrent, Bitcoin, and LionShare be used?

peer-to-peer*
client-based
master-slave
point-to-point

Explanation: In a peer-to-peer networking model, data is exchanged between two network devices without the use of a dedicated server. Peer-to-peer applications such as Shareaz, eDonkey, and Bitcoin allow one network device to assume the role of server, while one or more other network devices assume the role of client using the peer-to-peer application.

35. What is a common protocol that is used with peer-to-peer applications such as WireShare, Bearshare, and Shareaza?

Ethernet
Gnutella*
POP
SMTP

36. What is a key characteristic of the peer-to-peer networking model?

wireless networking
social networking without the Internet
network printing using a print server
resource sharing without a dedicated server*

Explanation: The peer-to-peer (P2P) networking model allows data, printer, and resource sharing without a dedicated server.

37. The application layer of the TCP/IP model performs the functions of what three layers of the OSI model? (Choose three.)

physical
sesión*
network
presentation*
data link
transport
application*

Explanation: The network access layer of the TCP/IP model performs the same functions as the physical and data link layers of the OSI model. The internetwork layer equates to the network layer of the OSI model. The transport layers are the same in both models. The application layer of the TCP/IP model represents the session, presentation, and application layers of the OSI model.

38. What is an example of network communication that uses the client-server model?

A user uses eMule to download a file that is shared by a friend after the file location is determined.
A workstation initiates an ARP to find the MAC address of a receiving host.
A user prints a document by using a printer that is attached to a workstation of a coworker.
A workstation initiates a DNS request when the user types www.cisco.com in the address bar of a web browser.*

Explanation: When a user types a domain name of a website into the address bar of a web browser, a workstation needs to send a DNS request to the DNS server for the

name resolution process. This request is a client/server model application. The eMule application is P2P. Sharing a printer on a workstation is a peer-to-peer network. Using ARP is just a broadcast message sent by a host.

39. Which layer in the TCP/IP model is used for formatting, compressing, and encrypting data?

internetwork
session
presentation
application*
network access

Explanation: The application layer of the TCP/IP model performs the functions of three layers of the OSI model – application, presentation, and session. The application layer of the TCP/IP model is the layer that provides the interface between the applications, is responsible for formatting, compressing, and encrypting data, and is used to create and maintain dialogs between source and destination applications.

40. What is an advantage of SMB over FTP?

Only with SMB can data transfers occur in both directions.
Only SMB establishes two simultaneous connections with the client, making the data transfer faster.
SMB is more reliable than FTP because SMB uses TCP and FTP uses UDP.
SMB clients can establish a long-term connection to the server.*

41. A manufacturing company subscribes to certain hosted services from its ISP. The services that are required include hosted world wide web, file transfer, and e-mail. Which protocols represent these three key applications? (Choose three.)

FTP*
HTTP*
DNS
SNMP
DHCP
SMTP*

42. Which application layer protocol uses message types such as GET, PUT, and POST?

DNS
DHCP

SMTP
HTTP*
POP3
Explanation: The GET command is a client request for data from a web server. A PUT command uploads resources and content, such as images, to a web server. A POST command uploads data files to a web server.

43. What type of information is contained in a DNS MX record?

the FQDN of the alias used to identify a service
the IP address for an FQDN entry
the domain name mapped to mail exchange servers*
the IP address of an authoritative name server
Explanation: MX, or mail exchange messages, are used to map a domain name to several mail exchange servers that all belong to the same domain.

44. Which three protocols operate at the application layer of the TCP/IP model? (Choose three.)

ARP
TCP
UDP
FTP*
POP3*
DHCP*
Explanation: FTP, DHCP, and POP3 are application layer protocols. TCP and UDP are transport layer protocols. ARP is a network layer protocol.

45. Which protocol is used by a client to communicate securely with a web server?

SMTP
SMB
IMAP
HTTPS*
Explanation: HTTPS is a secure form of HTTP used to access web content hosted by a web server.

46. Which applications or services allow hosts to act as client and server at the same time?

client/server applications
email applications

P2P applications*
authentication services

47. What are two characteristics of peer-to-peer networks? (Choose two.)

scalability
one way data flow
decentralized resources*
centralized user accounts
resource sharing without a dedicated server*

Explanation: Peer-to-peer networks have decentralized resources because every computer can serve as both a server and a client. One computer might assume the role of server for one transaction while acting as a client for another transaction. Peer-to-peer networks can share resources among network devices without the use of a dedicated server.

48. Which scenario describes a function provided by the transport layer?

A student is using a classroom VoIP phone to call home. The unique identifier burned into the phone is a transport layer address used to contact another network device on the same network.
A student is playing a short web-based movie with sound. The movie and sound are encoded within the transport layer header.
A student has two web browser windows open in order to access two web sites. The transport layer ensures the correct web page is delivered to the correct browser window.*
A corporate worker is accessing a web server located on a corporate network. The transport layer formats the screen so the web page appears properly no matter what device is being used to view the web site.

Explanation: The source and destination port numbers are used to identify the correct application and window within that application.

49. Which three layers of the OSI model provide similar network services to those provided by the application layer of the TCP/IP model? (Choose three.)

physical layer
session layer*
transport layer
application layer*
presentation layer*
data link layer

Explanation: The three upper layers of the OSI model, the session, presentation, and application layers, provide application services similar to those provided by the TCP/IP model application layer. Lower layers of the OSI model are more concerned with data flow.

50. A PC that is communicating with a web server has a TCP window size of 6,000 bytes when sending data and a packet size of 1,500 bytes. Which byte of information will the web server acknowledge after it has received two packets of data from the PC?

3001*
6001
4500
6000

51. A PC that is communicating with a web server has a TCP window size of 6,000 bytes when sending data and a packet size of 1,500 bytes. Which byte of information will the web server acknowledge after it has received three packets of data from the PC?

4501*
6001
6000
4500

52. A PC that is communicating with a web server has a TCP window size of 6,000 bytes when sending data and a packet size of 1,500 bytes. Which byte of information will the web server acknowledge after it has received four packets of data from the PC?

6001*
3001
1501
1500

53. A PC that is communicating with a web server has a TCP window size of 6,000 bytes when sending data and a packet size of 1,500 bytes. Which byte of information will the web

server acknowledge after it has received four packets of data from the PC?

6001*
3001
3000
1500

54. A PC that is communicating with a web server has a TCP window size of 6,000 bytes when sending data and a packet size of 1,500 bytes. Which byte of information will the web server acknowledge after it has received two packets of data from the PC?

3001*
4501
3000
1500

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3001*
4501
4500
1500

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6001
4500
3000

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3001*
6001
6000
3000

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4501*
6001
6000
3000

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4501*
6001
1500
4500

60. A client creates a packet to send to a server. The client is requesting TFTP service. What number will be used as the destination port number in the sending packet?

69*
67
53
80

61. A client creates a packet to send to a server. The client is requesting FTP service. What number will be used as the destination port number in the sending packet?

21*
69
67
80

62. A client creates a packet to send to a server. The client is requesting SSH service. What number will be used as the destination port number in the sending packet?

22*
69
67
80

63. A client creates a packet to send to a server. The client is requesting HTTP service. What number will be used as the destination port number in the sending packet?

80*
67
53
69

64. A client creates a packet to send to a server. The client is requesting POP3 service. What number will be used as the destination port number in the sending packet?

110*
67
53
69

65. A client creates a packet to send to a server. The client is requesting telnet service. What number will be used as the destination port number in the sending packet?

23*
443
161
110

66. A client creates a packet to send to a server. The client is requesting POP3 service. What number will be used as the destination port number in the sending packet?

110*
443
161
80

67. A client creates a packet to send to a server. The client is requesting SNMP service. What number will be used as the destination port number in the sending packet?

161*
443
110
80

68. A client creates a packet to send to a server. The client is requesting SMTP service. What number will be used as the destination port number in the sending packet?

25*
443
161
110

69. A client creates a packet to send to a server. The client is requesting HTTPS service. What number will be used as the destination port number in the sending packet?

443*
161
110
80

Modules 14 – 15: Network Application Communications Exam Answers (Additional)

1. Which action is performed by a client when establishing communication with a server via the use of UDP at the transport layer?

The client sets the window size for the session.
The client sends an ISN to the server to start the 3-way handshake.
The client randomly selects a source port number.*
The client sends a synchronization segment to begin the session.

2. Which transport layer feature is used to guarantee session establishment?

UDP ACK flag
TCP 3-way handshake*
UDP sequence number
TCP port number

3. What is the complete range of TCP and UDP well-known ports?

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the combination of the source and destination IP address and source and destination Ethernet address
the combination of a source IP address and port number or a destination IP address and port number*
the combination of the source and destination sequence and acknowledgment numbers
the combination of the source and destination sequence numbers and port numbers

5. How does a networked server manage requests from multiple clients for different services?

The server sends all requests through a default gateway.
Each request is assigned source and destination port numbers.*
The server uses IP addresses to identify different services.
Each request is tracked through the physical address of the client.

6. Which two services or protocols use the preferred UDP protocol for fast transmission and low overhead? (Choose two)

FTP
DNS*
HTTP
POP3
VoIP*

7. What is the purpose of using a source port number in a TCP communication?

to notify the remote device that the conversation is over
to assemble the segments that arrived out of order
to keep track of multiple conversations between devices*
to inquire for a nonreceived segment

8. Which number or set of numbers represents a socket?

01-23-45-67-89-AB
21
192.168.1.1:80*
10.1.1.15

9. Which two flags in the TCP header are used in a TCP three-way handshake to establish connectivity between two network devices? (Choose two.)

ACK*
FIN
PSH
RST
SYN*
URG

10. What happens if part of an FTP message is not delivered to the destination?

The message is lost because FTP does not use a reliable delivery method.
The FTP source host sends a query to the destination host.
The part of the FTP message that was lost is re-sent.*
The entire FTP message is re-sent.

11. What type of applications are best suited for using UDP?

applications that are sensitive to delay*
applications that need reliable delivery
applications that require retransmission of lost segments
applications that are sensitive to packet loss

12. Network congestion has resulted in the source learning of the loss of TCP segments that were sent to the destination. What is one way that the TCP protocol addresses this?

The source decreases the amount of data that it transmits before it receives an acknowledgement from the destination.*
The source decreases the window size to decrease the rate of transmission from the destination.
The destination decreases the window size.
The destination sends fewer acknowledgement messages in order to conserve bandwidth.

13. Which two operations are provided by TCP but not by UDP? (Choose two.)

identifying the applications
acknowledging received data*
tracking individual conversations
retransmitting any unacknowledged data*
reconstructing data in the order received

14. What is the TCP mechanism used in congestion avoidance ?

three-way handshake
socket pair
two-way handshake
sliding window*

15. What is a responsibility of transport layer protocols?

providing network access
tracking individual conversations*
determining the best path to forward a packet
translating private IP addresses to public IP addresses

16. Which protocol can be used to transfer messages from an email server to an email client?

SMTP
POP3*
SNMP
HTTP

17. When retrieving email messages, which protocol allows for easy, centralized storage and backup of emails that would be desirable for a small- to medium-sized business?

IMAP*
POP
SMTP
HTTPS

18. Which application layer protocol is used to provide file-sharing and print services to Microsoft applications?

HTTP
SMTP
DHCP
SMB*

19. An author is uploading one chapter document from a personal computer to a file server of a book publisher. What role is the personal computer assuming in this network model?

Client*
master
server
slave
transient

20. Which statement is true about FTP?

The client can choose if FTP is going to establish one or two connections with the server.
The client can download data from or upload data to the server.*
FTP is a peer-to-peer application.
FTP does not provide reliability during data transmission.

21. A wireless host needs to request an IP address. What protocol would be used to process the request?

FTP
HTTP
DHCP*
ICMP
SNMP

22. Which TCP/IP model layer is closest to the end user?

Application*
internet
network access
transport

23. Which three protocols or standards are used at the application layer of the TCP/IP model? (Choose three.)

TCP
HTTP*
MPEG*
GIF*
IP
UDP

24. Which protocol uses encryption?

DHCP
DNS

FTP
HTTPS*

25. Why is DHCP preferred for use on large networks?

Large networks send more requests for domain to IP address resolution than do smaller networks.
DHCP uses a reliable transport layer protocol.
It prevents sharing of files that are copyrighted.
It is a more efficient way to manage IP addresses than static address assignment.*
Hosts on large networks require more IP addressing configuration settings than hosts on small networks.

26. Which two tasks can be performed by a local DNS server? (Choose two.)

providing IP addresses to local hosts
allowing data transfer between two network devices
mapping name-to-IP addresses for internal hosts*
forwarding name resolution requests between servers*
retrieving email messages

27. On a home network, which device is most likely to provide dynamic IP addressing to clients on the home network?

a dedicated file server
a home router*
an ISP DHCP server
a DNS server

28. What part of the URL, http://www.cisco.com/index.html, represents the top-level DNS domain?

.com*
www
http
index

29. What are two characteristics of the application layer of the TCP/IP model? (Choose two.)

responsibility for logical addressing
responsibility for physical addressing
the creation and maintenance of dialogue between source and destination applications*
closest to the end user*
the establishing of window size

30. What message type is used by an HTTP client to request data from a web server?

GET*
POST
PUT
ACK