Test Bank—Chapter Four (Networks and the Internet)

Multiple Choice Questions

1. Which of the following is not a way of classifying networks?

A. WAN versus LAN B. Closed versus open
C. Router versus bridge D. Star versus bus

ANSWER: C

2. Ethernet is a means of implementing which of the following network topologies?

A. Star B. WiFi C. Bus

ANSWER: C

3. Which of the following connects existing networks to form an internet?

A. Bridge B. Router C. Switch D. Repeater

ANSWER: B

4. Which of the following is a protocol for controlling the right to transmit a message in a network?

A. UDP B. CSMA/CD C. TCP D. FTP

ANSWER: B

5. Which of the following is not a means of performing interprocess communication over a network?

A. Client/server B. ICANN C. Peer-to-peer

ANSWER: B

6. Which of the following is assigned the task of providing individual users access to the Internet?

A. Tier-1 ISPs B. Tier-2 ISPs C. Access ISPs D. ICANN

ANSWER: C

7. Which of the following is not an application of the Internet?

A. FTP B. Email C. Telnet D. CERT

ANSWER: D

8. The primary purpose of which of the following is not the enhancement of security?

A. ICANN B. Firewall C. Encryption D. CERT

ANSWER: A

9. Which of the following is used to translate between IP addresses and mnemonic addresses?

A. File server B. Mail server C. Name server D. FTP server

ANSWER: C

10. Which of the following is not a means of connecting networks?

A. Switch B. Server C. Router D. Bridge

ANSWER: B

11. Which layer of the TCP/IP hierarchy actually transmits a message?

A. Application B. Transport C. Network D. Link

ANSWER: D

12. Which layer of the TCP/IP hierarchy chops messages into units whose size is compatible with the Internet?

A. Application B. Transport C. Network D. Link

ANSWER: B

13. Which layer of the TCP/IP hierarchy decides the direction in which message segments are transferred across the Internet?

A. Application B. Transport C. Network D. Link

ANSWER: C

14. Which layer of the TCP/IP hierarchy decides which application should receive an incoming message?

A. Application B. Transport C. Network D. Link

ANSWER: A

15. Which layer of the TCP/IP hierarchy presents incoming messages to the computer user?

A. Application B. Transport C. Network D. Link

ANSWER: A

16. Which layer of the TCP/IP hierarchy reassembles messages as their pieces arrive at the destination?

A. Application B. Transport C. Network D. Link

ANSWER: B

17. Which layer of the TCP/IP hierarchy is responsible for obtaining the correct address for a message's destination?

A. Application B. Transport C. Network D. Link

ANSWER: A

18. Which of the following identifies the application to which a message arriving from the Internet should be given?

A. Protocol B. Port number C. Domain D. Hop count

ANSWER: B

19. Which standards organization produced the OSI reference model for internet communication?

A. ANSIB. IEEE C. ISO

ANSWER: C

20. Which of the following is an Internet application that is named after its underlying protocol?

A. EmailB. World Wide Web C. FTP D. UDP

ANSWER: C

21. Which of the following is not a means of implementing server-side activities?

A. CGI B. JSP C. ASP D. Applets

ANSWER: D

22. Which of the following is not a protocol used in the basic TCP/IP software hierarchy?

A. POP3B. UDP C. TCP D. IP

ANSWER: A

Fill-in-the-blank/Short-answer Questions

1. List two network topologies.

A. _____

B. _____

ANSWER: star and bus

2. What are two protocols for implementing the transport level in the "TCP/IP hierarchy"?

A. _____ B. _____

ANSWER: TCP and UDP

3. Draw a circle the portion of the URL below that identifies the directory containing the file being addressed. Underline the portion that identifies the protocol that should be used when accessing the file. Draw a rectangle around the portion that identifies the file name itself.

```
http://batcave.metropolis.com/heroes/superheroes/batpage.html
```

ANSWER: Circle: superheroes, underline: http, rectangle: batpage.html (or just batpage)

4. Underline the portion of the URL below that identifies the classification (top-level domain) of the registered domain in which the pertinent Web server resides. Draw a rectangle around the portion that indicates the directory path the server should follow to find the designated document.

```
http://batcave.metropolis.com/heroes/superheroes/batpage.html
```

ANSWER: Underline: com, rectangle: heroes/superheroes

5. Draw a rectangle around the portion of the email address below that identifies the "person" who should receive the message. Underline the portion that identifies the location of the mail server that handles the mail for that person.

```
Fido@dogmail.zoo.org
```

ANSWER: Rectangle: Fido, underline: dogmail.zoo.org

6. What bit pattern is represented by 33.42.18 in dotted decimal notation?

_____

ANSWER: 00100001 00101010 00010010 (212A12 in hexadecimal)

7. Express the bit pattern 0001001000001100 in dotted decimal notation.

_____

ANSWER: 18.12

8. The main purpose of _____ and _____ ISPs is to provide a system of high-speed routers that serve as the Internet's communication backbone, whereas _____ ISPs concentrate on providing Internet access to the Internet's users.

ANSWER: Tier-1, tier-2, access

9. Name three kinds of servers.

A. _____

B. _____

C. _____

ANSWER: Possible answers include: name server, file server, mail server, Web server, etc.

10. List four top-level domains.

A. _____ B. _____

C. _____ D. _____

ANSWER: Possible answers include com, org, edu, gov, net, uk, ca, etc.

11. What terms in the following HTML document are linked to other documents?

```
<html>
<head>
<title>This is the title</title>
</head>
<body>
<h1>Favorite Animals</h1>
<p>Of all the animals in the world, the
<a href="http://pigs.org/pigs.html">pig</a> is
perhaps the most charming.</p><p>However, the
<a href="http://hippopotamuscity.org/hippo.html">
hippopotamus</a> is also cute.</p>
</body>
</html>
```

ANSWER: pig, hippopotamus

12. Fill in the blanks in the HTML document below so that the term "Earth" will be linked to the HTML document "earthinfo.html" in the directory "earthdir" at "earthnews.com."

```
<html>
<head>
<title>Earth page</title>
</head>
<body>
<p>The planet we live on is called

_____ Earth _____

</p>
</body>
</html>
```

ANSWER: `<a href="http://earthnews.com/earthdir/earthinfo.html">, </a>`

13. Fill in the blanks with the missing tags to the following HTML document.

```
<html>
<head>
_____ Title </title>
</head>

_____
<p>Click on
<a href="http://this..org"> this. _____

_____
</body>
</html>
```

ANSWER: The following tags are missing: `<title>`, `>`, `<body>`, `</a>`, and `</p>`.

14. Fill in the blank in the following HTML document so that the image called dog.jpg will be displayed at the top of the page.

```
<body>

_____
```

```
<p>Above is a picture of Fido.</p>
</body>
```

ANSWER: `<img src = "dog.jpg">`

15. List two features of HTML that conform to the XML style.

A. _____

B. _____

ANSWER: Possible answer include: Tags are surrounded by < and >, tags that close an item are the same as the opening tag except that / is added, tag name are in lower case, and others.

16. Identify two protocols used in networks to determine the right to transmit an original message.

A. _____ B. _____

ANSWER: CSMA/CD and CSMA/CA

17. Identify a protocol used in the implementation of the network layer in the TCP/IP hierarchy.

_____

ANSWER: IP

18. In each blank below write the HTML tag that performs the indication function.

A. _____ Begins the part that describes what will appear on the computer screen

B. _____ Marks the end of the HTML document

C. _____ Marks the beginning of a paragraph

D. _____ Marks the end of a term that is linked to another document

ANSWER: A. `<body>` B. `</html>` C. `<p>` D. `</a>`

19. The client/server model refers to a form of interprocess communication in which one process, known as the _____ , runs continuously so that it can be contacted by other processes, known as _____ , as needed. In contrast is the _____ model of interprocess communication in which two processes communicate as equals.

ANSWER: server, clients, peer-to-peer

20. Where would be the most likely place to put a firewall to provide each of the following services?

A. _____ Protect an entire domain from attacks from the cloud

B. _____ Protect an entire domain from spam

C. _____ Protect an individual machine from worms and viruses

ANSWER: A. At the gateway B. At the domain's mail server C. At the individual machine

21. Write the entire URL required to retrieve the Web document named bulldogs.html from the Web server at animals.org assuming that the document is stored in the directory named dogs.

ANSWER: `http://animals.org/dogs/bulldogs.html`

Vocabulary (Matching) Questions

The following is a list of terms from the chapter along with descriptive phrases that can be used to produce questions (depending on the topics covered in your course) in which the students are ask to match phrases and terms. An example would be a question of the form, "In the blank next to each phrase, write the term from the following list that is best described by the phrase."

Term	Descriptive Phrase
internet	A network of networks
tier-1 ISP	An organization that provides the Internet's communication backbone
access ISP	An organization that provides access to the Internet
domain	A name registered with ICANN for identification purposes
protocol	A governing set of rules
cloud	The portion of the Internet lying outside one's domain
IP address	Identifies a machine on the Internet
HTML	A notational system for indicating how a Web document is to be displayed by a browser
firewall	A means of blocking undesired messages
packet	A message segment that is transmitted over the Internet independently
XML	A "format" for markup languages
FTP	A protocol for transferring files
router	A means of connecting networks to form an internet
dotted decimal	A notational system for representing bit patterns
URL	A means of identifying a document on the Web
search engine	A means of finding relevant information on the Web
Ethernet	A means of implementing a network with the bus topology
UDP	A protocol for the transport layer
IP	A protocol for the network layer

General Format Questions

1. What is the difference between a repeater and a bridge?

ANSWER: Both repeaters and bridges are used to connect two buses, but a repeater transfers all messages whereas a bridge transfers only those messages destined for the other side.

2. What is the difference between hubs, switches, and routers?

ANSWER: A hub is merely a central (short) bus to which computers are connected to form a bus network. A switch connects several bus networks to form a larger network. A router connects two networks to form an internet in which the original two networks continue to function as independent networks.

3. Many people use the terms Internet and world-wide web interchangeably. What is the difference between the Internet and the world-wide web?

ANSWER: The Internet is the infrastructure used by the world-wide web. That is, the world-wide web is only one application of the Internet. Other applications include email, ftp, and telnet.

4. What are HTML and XML?

ANSWER: HTML is an actual markup language. XML is not a markup language itself. Instead it is a markup language "style."

5. What are some distinctions between UDP and TCP?

ANSWER: UDP is a connectionless protocol whereas TCP establishes a two way communication between the origin and destination of a message. TCP is a reliable protocol in that the origin and destination work together to confirm that the entire message was successfully transferred. In contrast, UDP merely transmits the message without confirming it reception.

6. As an encryption system, what is unique about public-key encryption (that is, why is public-key encryption so named)?

ANSWER: In a public-key encryption system, knowing the encryption key does not allow one to decipher a message. Thus, the encryption key can be public knowledge without violating security.

7. Draw a sketch showing how the following HTML document would appear on the computer screen when displayed by a browser.

```
<html>
<head>
<title>This is the title</title>
</head>
<body>
<h1>Mud Art</h1>
</body>
</html>
```

ANSWER: The displayed page contains only the words "Mud Art" displayed as a major heading. The words "This is the title" are NOT part of the displayed page.

8. Draw a sketch showing how the following HTML document would appear on the computer screen when displayed by a browser.

```
<html>
<head>
<title>This is the title</title>
</head>
<body>
<h1>Favorite Animals</h1>
<p>Of all the animals in the world, the
<a href="http://pigs.org/pigs.html">pig</a> is
perhaps the most charming.</p><p>However, the
<a href="http://hippopotamuscity.org/hippo.html">
hippopotamus</a> is also cute.</p>
</body>
</html>
```

ANSWER: Something like this:

Favorite Animals

Of all the animals in the world, the pig

is perhaps the most charming.
However, the hippopotamus is also cute.

9. What would happen if a user clicked the mouse on the term “pig” while viewing the HTML document shown below?

```
<html>
<head>
<title>This is the title</title>
</head>
<body>
<h1>Favorite Animals</h1>
<p>Of all the animals in the world, the
<a href=”http://pigs.org/pigs.html”>pig</a> is
perhaps the most charming.</p><p>However, the
<a href=”http://hippopotamuscity.org/hippo.html”>
hippopotamus</a> is also cute.</p>
</body>
</html>
```

ANSWER: The browser would retrieve and display the document pigs.html.

10. To what do the terms “server side” and “client side” refer?

ANSWER: They indicate whether the identified activity is performed by the client or the server when using the client/server model for interprocess communication.

11. What assumptions are made when a URL is denoted by merely zoo.org?

ANSWER: It is assumed that the protocol is http and that the document desired is the default document in the default directory.

12. Briefly summarize the steps performed by each of the four layers in the TCP/IP hierarchy at the computer at which a message originates.

ANSWER: Application layer: originates the message and obtains destination’s IP address. Transport layer: chops message into segments and assigns sequence numbers. Network layer: determines intermediate address. Link layer: transmits message segments.