Introduction to Computer Networks
Chapter 1

TRUE/FALSE

1. File and printer sharing for Microsoft networks is an example of a network protocol.

   ANS: F PTS: 1 REF: Page 16

2. A network that has locations in different countries is considered a WAN.

   ANS: T PTS: 1 REF: Page 28

3. In order to find out your MAC address, you should open a command prompt and type ipconfig /all.

   ANS: T PTS: 1 REF: Page 23

4. What makes a computer a "server" is the fact that it has a server operating system installed on it.

   ANS: T PTS: 1 REF: Page 33

5. Each component of a computer is designed to perform only one specific task—either input, processing, or output.

   ANS: F PTS: 1 REF: Page 2

MULTIPLE CHOICE

1. The XYZ company has two offices, one downtown, and a brand new office in the newer section of town. To connect the two offices, they will need a dedicated line, probably leased from the local phone company. What type of network will they be implementing to connect their two offices?

   a. LAN
   b. internetwork
   c. MAN
   d. SAN

   ANS: C PTS: 1 REF: Page 28

2. Airwaves are an example of what type of network component?

   a. Network Interface Card
   b. network medium
   c. interconnecting device
   d. network protocol

   ANS: B PTS: 1 REF: Page 15

3. Windows 7, Windows Vista, and Windows XP are all examples of which of the following?

a. network protocols
b. client operating systems
c. server software
d. server operating systems

ANS: B PTS: 1 REF: Page 33

4. What is one of the disadvantages of a peer-to-peer network compared to a server-based network?

a. more difficult to setup and install
b. more expensive
c. higher administration costs
d. limited security

ANS: D PTS: 1 REF: Page 35

5. What command would you issue from a command prompt to see a listing of the computers in your workgroup?

a. arp -a
b. net view
c. ipconfig /all
d. ping

ANS: B PTS: 1 REF: Page 39

6. What is one of the disadvantages of a server-based network compared to a peer-to-peer network?

a. additional costs
b. decentralized data access
c. difficult to expand
d. less secure

ANS: A PTS: 1 REF: Page 37

7. For any device to communicate with the computer, either through input or output, it must have what special software installed?

a. client
b. network interface
c. network protocol
d. device driver

ANS: D PTS: 1 REF: Page 13

8. When data is being prepared for transmission onto the network, it is broken into small pieces and a header and trailer are added to each piece to help identify it. What is this process called?

a. multitasking
b. verification
c. encapsulation
d. application

ANS: C PTS: 1 REF: Page 32

9. Every NIC is embedded with a unique address that consists of a 12-digit hexadecimal value. What is this address called?

   a. IP address
   b. subnet mask
   c. MAC address
   d. default gateway

   ANS: C PTS: 1 REF: Page 23

10. What was the primary reason to create a network?

    a. share resources
    b. communicate with e-mail
    c. share information
    d. all of the above

    ANS: D PTS: 1 REF: Page 14

11. You are building a gaming computer and you want to install a dedicated graphics card that has a fast GPU and 1GB of memory onboard. You need to make sure that you have the right connector available on your motherboard. What type of connector would be appropriate?

    a. PCI
    b. SATA
    c. PCI-Express
    d. IDE

    ANS: C PTS: 1 REF: Page 6

12. You want a fast CPU for the new computer you are building and your motherboard only has one CPU socket. To increase the processing power, you need a CPU that provides more than one processor. What is this CPU called?

    a. multicore
    b. multiple
    c. multifaceted
    d. multilink

    ANS: A PTS: 1 REF: Pages 3-4

13. Which component, located on the motherboard, carries out all the instructions provided by computer programs?
    a. hard drive
    b. RAM
    c. NIC
    d. CPU

    ANS: D PTS: 1 REF: Page 3

14. You are the network administrator for a company and you want to separate the traffic from the accounting department from the rest of the network. However, the accounting department still needs to have access to other network resources. What type of network do you need to implement?

    a. WPAN

b. internetwork
c. WAN
d. wireless network

ANS: B PTS: 1 REF: Page 26

15. Which part of the network communication process is responsible for sending and receiving data to and from the network media?

a. network software
b. network protocol
c. user application
d. NIC driver

ANS: D PTS: 1 REF: Page 17

16. You're the network administrator for a company located in Arizona that has just opened an office in Texas. You need to make sure that the two locations can communicate. What type of network are you implementing?
a. MAN
b. WAN
c. internetwork
d. extended LAN

ANS: B PTS: 1 REF: Page 28

17. You have just started a new business. You need to have three to four workstations available for your employees who simply need to share some files and a printer, but you don't have a large budget. Security is not a major concern, but costs are. What type of network would be the most appropriate for your situation?

a. internetwork
b. domain
c. peer-to-peer network
d. server-based network

ANS: C PTS: 1 REF: Pages 34-36

MULTIPLE RESPONSE

1. Which of the following are examples of output devices? (Choose all that apply.)

a. monitor
b. printer
c. keyboard
d. hard disk
e. CPU

ANS: A, B, D PTS: 1 REF: Page 4

2. Which of the following are examples of input devices? (Choose all that apply.)

a. mouse
b. monitor
c. DVD

d. scanner
e. printer

ANS: A, C, D PTS: 1 REF: Page 3

COMPLETION

1. The three basic functions of a computer are input, _____, and output.

   ANS: processing

   PTS: 1 REF: Page 2

2. _____ components include devices such as printers, disk drives, network cards, and monitors.

   ANS: Output

   PTS: 1 REF: Page 4

3. A _____ is a packet that has been encapsulated with the source and destination MAC addresses in the header and an error-checking code in the trailer.

   ANS: frame

   PTS: 1 REF: Page 32

4. There are two different network models. One of them, a peer-to-peer network, also is referred to as a _____ network.

   ANS: workgroup

   PTS: 1 REF: Page 34

5. _____ is an operating system's ability to execute more than one process at a time.

   ANS: Multitasking

   PTS: 1 REF: Page 13

6. Before data is transmitted, it is broken into chunks of data and then encapsulated with the source and destination IP addresses to create a _____.

   ANS: packet

   PTS: 1 REF: Pages 30-31

MATCHING

Match each item with a statement below:

a. motherboard
b. internetwork
c. BIOS
d. LAN
e. CPU
f. hard drive
g. WAN
h. NIC
i. RAM
j. CMOS

1. short-term storage
2. main processing component of the computer
3. nerve center of the computer
4. contains instructions for the computer's boot process
5. network that connects devices in a small geographic area
6. long-term storage
7. network that is geographically dispersed
8. type of memory that holds the system configuration information
9. connection between the computer and the network
10. networks connected with a router

1. ANS: I PTS: 1 REF: Page 4
2. ANS: E PTS: 1 REF: Page 3
3. ANS: A PTS: 1 REF: Page 5
4. ANS: C PTS: 1 REF: Page 8
5. ANS: D PTS: 1 REF: Page 26
6. ANS: F PTS: 1 REF: Page 5
7. ANS: G PTS: 1 REF: Page 28
8. ANS: J PTS: 1 REF: Page 9
9. ANS: H PTS: 1 REF: Page 15
10. ANS: B PTS: 1 REF: Page 26

SHORT ANSWER

1. What is the difference between short-term storage and long-term storage?

   ANS:
   Data that is stored in short-term storage is completely erased when the computer is powered off. When the computer is turned back on, there is no trace of any previous data. The computer transfers programs and files into this short-term storage to make it readily available for the CPU. Long-term storage retains its data even when no power is applied to the computer. Long-term storage is where programs and files are stored.

   PTS: 1 REF: Pages 4-5

2. How do you access the BIOS setup utility?

   ANS:

Turn your computer on and watch the first screen that appears carefully as it will have a message. This message will tell you what key to press to enter the BIOS. When you know what key to press, do so quickly. If you do not press the key in time, the computer will continue to boot. After it boots, shut down the computer and try again.

PTS: 1 REF: Page 10

3. What is the difference between a LAN, a MAN, and a WAN?

ANS:
A LAN is a group of computers connected by a network device, such as a hub or switch, that is located in a small area, such as an office building. LAN connections usually have high data transfer rates and use UTP cabling. A MAN is a slightly larger implementation of a LAN that spans a greater area, usually making it necessary to lease telecommunication lines from a local phone company. A WAN is a network that covers a much larger area. It can be in the same state, or across several states, or across several countries. It usually connects several LANs together using high-speed, public communication links that are typically very expensive.

PTS: 1 REF: Pages 26-29

4. What are the three basic tasks performed by a computer?

ANS:
Input, processing, and output. First, it accepts input. Input can come from several different devices like a mouse, a keyboard, or storage. Input usually is generated by a user's actions, but not always. Next, the CPU processes the input, which means that it examines the input and determines or calculates the results. Finally, the CPU sends instructions to whatever device is appropriate to perform or display the output. Output devices include, but are not limited to, monitors, printers, and storage devices.

PTS: 1 REF: Pages 2-3

5. What is a peer-to-peer network, and what are it's advantages and disadvantages?

ANS:
A peer-to-peer network is a collection of computers in which each computer can act as a client or a server, or both, and each has equal authority. Advantages of a peer-to-peer network are that it is easy to install, is relatively inexpensive to implement, doesn't require extensive training or special staff, and the lose of a single machine will not cripple the network. Disadvantages include lack of security, difficult to locate resources, reduced performance when computer is acting as server, and limitation on the number of users.

PTS: 1 REF: Pages 34-36

6. What is a server-based network, and what are it's advantages and disadvantages?

ANS:
A server-based network is a network that has certain computers that take on the role of servers, and all the other computers act as clients. The advantages are centralized control over network resources, better security, easy expandability, and no limitations to the number of users. The disadvantages include higher costs for equipment and software, the need for administrative personnel to maintain network resources, and the fact that a single computer could cause the entire network to fail.

PTS: 1 REF: Pages 36-37

7. What is the difference between a client operating system and a server operating system?

   ANS:
   A client operating system is designed mainly to run user applications like a word processor or spreadsheet program and to access network resources like file servers or the Internet. A server operating system is designed to provide clients with access to network resources such as directory services, shared files, and e-mail.

   PTS: 1 REF: Page 33

8. Explain the boot procedure.

   ANS:
   First, power is supplied to the motherboard. Second, the CPU starts. Third, the CPU gets the configuration information from the BIOS and carries out the startup routines, which include performing the POST. The BIOS searches the boot devices for an OS. After an OS is found, it is loaded into RAM, and finally, the OS services are started.

   PTS: 1 REF: Page 9

9. What is the purpose of a device driver?

   ANS:
   A device driver is software that acts as the intermediary between a device and the OS. It handles all requests to and from the device. Whether an input device has data ready to send or an output device is ready for use, the device must have some way of contacting the OS. The device driver accomplishes this by sending a signal in the form of an interrupt.

   PTS: 1 REF: Pages 13-14

10. Judy has just sent a ping message from her computer to John's computer to verify that she has connectivity. List the steps that the message takes to get to the other computer and what layer of the network communication process each step relates to.

    ANS:
    First, Judy opens a command prompt and types the command "ping 192.168.0.10". This is the user application layer. The next step is for Judy's computer to create the ping message to send to John's computer. This is the network software layer. The ping message then is encapsulated with the IP addresses of both Judy's computer and John's, which are the source and destination IP addresses. At this step, Judy's computer also finds out what the MAC address of John's computer is, which will be the destination MAC address. Both of these steps are part of the network protocol layer. Finally, Judy's computer adds her MAC address and John's MAC address (source and destination MAC addresses) to the package, converts the message into bits, and sends it to the network medium. This is the network interface step.

    PTS: 1 REF: Pages 19-20