**Chapter 6 Review Questions**

1. An IPv6 address is made up of how many bits?

a. 32

b. 48

c. 64

**d. 128 (8 sections of 4 hexadecimal numbers, each section being 16 bits each)**

e. 256

2. The subnet mask of an IP address does which of the following?

a. Provides encryption in a TCP/IP network

**b. Defines network and host portions of an IP address (subnet mask separates IP address into host and network addresses)**

c. Allows automated IP address configuration

d. Allows users to use a computer’s name rather than its address

3. Which of the following is needed if a computer with the IP address 172.31.210.10/24

wants to communicate with a computer with the IP address 172.31.209.122/24?

a. Hub

**b. Router (Router is capable of transmitting data on a class B address)**

c. Switch

d. Server

4. Which of the following is a private IP address and can’t be routed across the Internet?

a. 192.156.90.100

**b. 172.19.243.254 (class B addresses are is private)**

c. 11.200.99.180

d. 221.24.250.207

e. 12.12.12.12

5. Which command should you use with a dual-homed server to make sure the server sends packets out the correct interface?

a. ipconfig

b. ping

c. tracert

**d. route (route command allows for user to manipulate IP routing table)**

6. Which command should you use to configure the primary DNS server on your computer?

a. ipconfig

**b. netsh (netsh allows you to locally or remotely display or modify a running computer’s network configuration)**

c. nslookup

d. arp

7. Which IP address expressed in CIDR notation has the subnet mask 255.255.255.0?

**a. 10.100.44.123/24 (each section is 8 bits, first 3 sections of 8 bits is 24, so first 3 should all be 255 while final section is 0)**

b. 172.16.88.222/16

c. 192.168.100.1/26

d. 172.29.111.201/18

8. Which IP network address expressed in CIDR notation can support a maximum of

1022 hosts?

a. 10.100.44.0/24

**b. 172.16.4.0/22 (32-22 = 10, 2 ^10 = 1024, 1024-2 = 1022)**

c. 192.168.100.64/26

d. 172.29.128.0/18

9. The IP address 10.240.0.0/8 can’t be assigned to a host. True or False?

**False (first two octets cannot be assigned if all equal to 1 or 0)**

10. What’s the term for each grouping of 8 bits in an IP address?

a. Quartet

b. Quintet

c. Hexadecimal

**d. Octet (8 bits = octet)**

11. When using TCP/IP, which of the following must computers on the same logical net- work have in common? (Choose all that apply.)

**a. Network ID**

b. Host ID

**c. Subnet mask (TCP/IP allows for one computer to talk to another through compiling packets and sending them to the right location, so Network ID and subnet mask should be the same)**

d. Computer name

12. Which of the following IPv6 features is an enhancement to IPv4? (Choose all that apply.)

**a. Larger address space**

b. Works at the Internetwork and Transport layers

**c. Built-in security (IPv6 has more bits and runs end to end encryption )**

d. Connectionless communication

13. Which protocol can configure a computer’s IP address and subnet mask automatically?

a. TCP

b. IP

c. ARP

**d. DNS (DNS turns a web URL into an IP address for the appropriate web server)**

e. DHCP

14. How many bits must be reallocated from host ID to network ID to create 16 subnets?

a. 6

**b. 4 (2^4 = 16)**

c. 16

d. 28

15. For the Class C network address 192.168.10.0, which of the following subnet masks

provides 32 subnets?

a. 255.255.255.252

**b. 255.255.255.248 ()**

c. 255.255.255.240

d. 255.255.255.224

16. How many host bits are necessary to assign addresses to 62 hosts?

**a. 6 (2^6 = 64, 64- 2= 62)**

b. 5

c. 4

d. 3

17. Which IP addressing process enables workstations to use private IP addresses to access the Internet?

a. Supernetting

**b. NAT (allows for private IP networks using unregistered IP addresses to connect to the internet)**

c. DHCP

d. Subnetting

18. When a Windows computer is configured to use DHCP but no DHCP server is avail- able, what type of address is configured automatically for it?

a. PAT

**b. APIPA (when dhcp serve is unavailable; using arp, a private, class B IP address is allocated; )**

c. NAT

d. Static

19. Which of the following represents a valid IPv6 address?

a. 2001:345:abcd:0:230:44

**b. 2001:345:abcd::BEEF:44**

c. 2001:345::abcd:0:79f::230:44

d. 2001:345:abcd:0:FEED:230:44

20. Which of the following is a reason to subnet? (Choose all that apply.)

**a. Networks can be divided into logical groups.**

b. Subnetting eliminates the need for routers.

**c. Subnetting can decrease the size of broadcast domains.**

d. There’s no need to assign static IP addresses to each computer.

**(Subnetting allows for large networks to be divided into smaller networks, more logical work groups, free up available IP addresses, and reducing the size of broadcast domain increases performance and efficiency)**

21. Which of the following IP addresses has 12 bits in the host ID?

a. 172.31.21.12/16

b. 172.31.89.100/12

c. 12.49.127.88/8

**d. 12.156.109.252/20 (32-20 = 12)**

22. You have a server with two NICs, each attached to a different IP network. You’re hav- ing problems communicating with devices on remote networks that send packets to one of the interfaces. The server receives the packets fine, but the server’s replies never reach the intended destination network. Replies to packets that come in through the other interface seem to reach their destination without any problems. What can you do that will most likely solve the problem?

a. Configure a second default gateway on the interface exhibiting problems.

b. Change the default gateway to use the router that’s on the network of the interface exhibiting problems.

**c. Use the route command to add routes to the networks that aren’t receiving replies. (route allows for the modification of a the routing table)**

d. Replace the NIC that’s having problems replying to packets.

23. You have just changed the IP address on a computer named computer5 in your domain from 172.31.1.10/24 to 172.31.1.110/24. You were communicating with this computer from your workstation fine right before you changed the address. Now when you try the command ping computer5 from your workstation, you don’t get a successful reply. Other computers on the network aren’t having a problem communicating with the computer. Which command might help solve the problem?

a. arp -d

**b. ipconfig /flushdns (ipconfig displays the IP address, subnet mask, default gateway, and refreshes all the DHCP and DNS settings; flushdns clears the DNS cache)**

c. tracert computer5

d. ping -6 172.31.1.110

24. Which address can’t be assigned to a host computer?

a. 10.100.44.16/24

b. 172.16.7.255/22

**c. 192.168.100.66/26**

d. 172.29.132.0/18

25. Which IPv6 transition technology can be used with NAT routers and has the address

prefix 2001::/32?

**a. Teredo (Teredo is a transition technology that gives IPv6 connectivity for IPv6-capable hosts that are on the IPv4 internet but have no native connection to an IPv6 network)**

b. ISATAP

c. 6to4

d. IPv6-over-IPv4

26. How many bits are in the interface ID of an IPv6 address?

a. 32

**b. 64**

c. 16

d. 48

27. What address should you ping if you want to test local IPv6 operation but don’t want to actually send any packets on the network?

a. 1::f

b. 2001::db8

c. fe80::ffff

**d. ::1**