**Worksheet 4 Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_**

**61**

**MCSE 1**

1. Name the 5 data grams of the OSI model and indicate which layer (by name, not number) each data gram is associated with?

[5]

2. For each of the following protocols, indicate which layer (by name), of the OSI model it is associated with?

[10] TCP = **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** DNS = **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

PPP = **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** Half duplex = **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

HTTP = **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** ICMP = **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

DHCP = **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** FTP = **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

MIME = **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** IP = **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

ARP = **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** UDP = **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

IPSec = **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** SMTP = **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

Telnet = **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** POP = **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

PPTP = **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** NetBIOS = **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

SSL = **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** L2TP = **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

3. List 3 types of addressing each frame contains. Opposite each address type indicate at which layer of the OSI model it is added to the frame. Assume the network is a LAN using Ethernet

[3]

4. Which port number is used for WEB services?

[1]

5. What is the purpose of the port numbers?

[2]

6. How is a source port number determined?

[2]

7. What is the range of source port numbers?

[2]

8. What are the two main functions of the network layer?

[2]

9. What is the purpose of the CRC found in the trailer of each frame?

[1]

10. What type of layer 2 addressing does frame relay use?

[1]

11. How is a MAC addresses assigned to a computer?

[2]

12. How is the frame relay address assigned to a computer?

[2]

13. How does a host decide if it should send the frame to a host on the same segment as itself or send it to the gateway?

[3]

14. How many bits are there in a MAC address?

[1]

15. How many bits are there in an IPv4 address?

[1]

16. How many bits are there in a port number?

[1]

17. If the MAC table is empty, how does a host find the MAC address of the destination host?

[1]

18. What do you type at the DOS prompt to see the contents of the MAC table?

[1]

19. What important information is found in the MAC table?

[2]

20. What is the advantage of having an ARP cache?

[1]

21. Explain what a router does to deliver a frame when it receives a frame on an Ethernet interface?

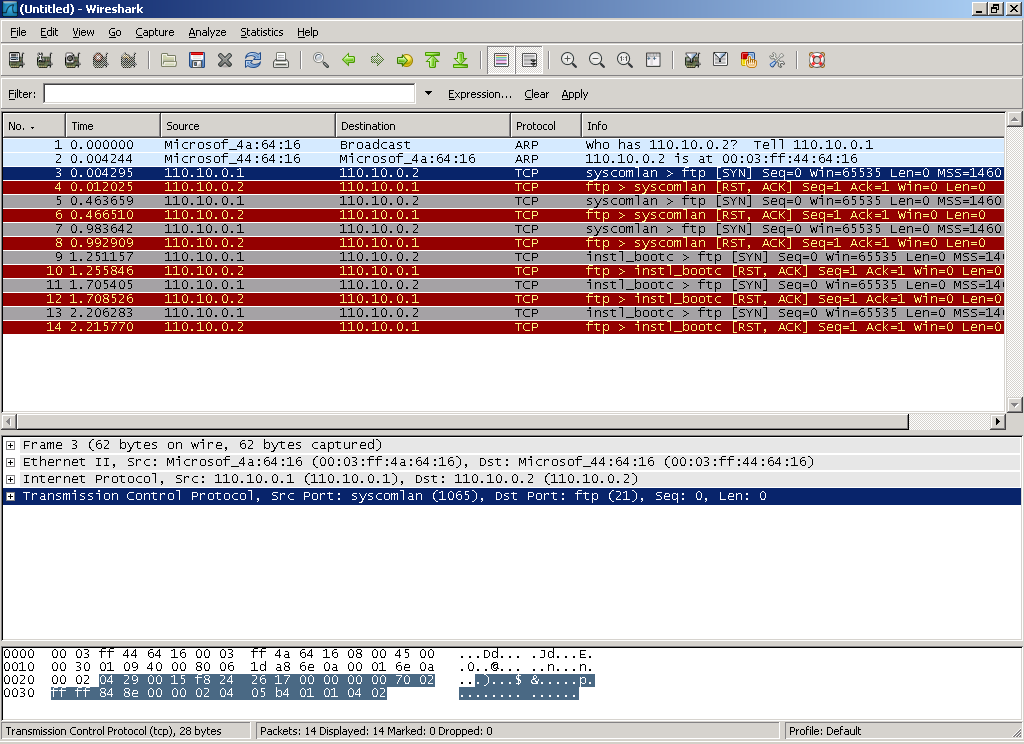
[4]

22. List the layers in the TCP/IP model.

[2]

23. Represent the IP address 157.62.115.87/19 in binary. Below that binary number, put the subnet mask in binary. AND the two binary numbers together to get the network number in binary. Then convert the binary network number into a dotted decimal network number.

[4]

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24. Draw an Ethernet frame as shown in figure 5 of the lecture notes for the 3rd frame shown above. Make sure the actual numbers for the 3 types of [7] addresses appear in your frame. Label each frame as source/destination as well as the name of the address; ie. port, IP, or MAC.