

IT4400 Advanced Networking

PRE-Test #1

Spring 2006

Name: _____

Instructions:

- Complete each task as instructed.
- The value of each task is listed in ()'s after the number.
- You may or may not want to complete in order of listing.
- You will have about 80 minutes to complete this exam.

Tasks:

1. (7) Label each of the layers found in the OSI model shown below.

2. (3) Describe what happens on the bottom later (layer #1)
3. (3) What happens on Layer #2?
4. (3) What happens on Layer #3?
5. (2) What device(s) are used on layer #1 for communication?
6. (2) What device(s) are used on Layer #2 for communication?
7. (2) What device(s) are used on Layer #3 for communication?
8. (2) Explain what noise might do on the wire?

9. (2) How might noise appear on your cable?

10. (3) What are three network topologies?

11. (2) In class we demonstrated two different WAN protocols used for transmission, what are they called?

12. (2) Which is true about an Ethernet crossover cable?

- a. Pins 1 and 2 are reversed on the other end of the cable.
- b. Pins 1 and 2 connect to pins 3 and 6 on the other end.
- c. Pins 1 and 2 connect to pins 3 and 4 on the other end.
- d. None of the Above.

13. (2) What type of cable does Cisco use for console access?

- a. Crossover Cable
- b. Straight-Through Cable.
- c. Token-Ring Pair
- d. Rollover
- e. None of the above.

14. (2) Circle Which terms describe Ethernet addresses that can be used to communicate with more than one device at a time?

- a. Burned-in address
- b. Unicast address
- c. Broadcast address
- d. Multicast address
- e. None of the above.

15. (2) Which of the following would be a collision domain?

- a. All devices connected to an Ethernet hub.
- b. All devices connected to an Ethernet switch.
- c. Two PCs with one cabled to a router Ethernet port with a crossover cable, and the other PC cabled to another router Ethernet port with a crossover cable.
- d. None of the above.

16. (2) How many DS0 channels fit into a T1/DS1?

17. (2) How many DS1 channels fit into a T3/DS3?

18. (2) How many bits is a MAC address?

19. (2) Which of the following is a valid Class C IP Address?

- a. 1.1.1.1
- b. 200.1.1.1
- c. 128.128.128.128
- d. 224.1.1.1
- e. 223.223.233.222

20. (2) What is the range for the values of the first octet for Class A IP nets?
- a. 0 to 127
 - b. 0 to 126
 - c. 1 to 127
 - d. 1 to 126
 - e. 128 to 191
 - f. 128 to 192
21. (2) Which of the following does a router normally use when making a decision about routing TCP/IP ?
- a. Destination MAC Address
 - b. Source MAC Address
 - c. Destination IP Address
 - d. Source IP Address
 - e. Destination MAC and IP Address.
22. (2) How many bits are present in an IP address?
23. (2) In IP Addresses, how many octets are in 1 byte?
24. (2) T or F. 10.0.0.0/8 is a unregistered, private, address space.
25. (2) T or F. 216.190.25.24/29 is the net. Does 216.190.25.32 belong in it?
26. (2) How many /24's make up a /19 network?
27. (3) What is the network address of: 216.190.25.225/26?
28. (2) What is the netmask of: 144.38.207.0/27 ?
29. (2) What are two benefits of using PPP for your serial link?
30. (4) What are the two reserved addresses in any CIDR networks that you can't use?
31. (2) What would I type to reach the configuration prompt on my router? (assume you're already 'enable'.)
32. (2) Which of the following protocols are reliable?
- a. TCP
 - b. IP
 - c. UDP
 - d. Ethernet

33. (2) Which of the following protocols are connection-oriented?
- TCP
 - IP
 - ICMP
 - UDP
 - Ethernet
34. (6) What are the three different packets that are sent to establish a new TCP connection?
- _____
35. (2) What type of router memory is used to store the operating system used for low-level debugging and not for normal operation?
- RAM
 - ROM
 - Flash
 - NVRAM
 - Bubble
36. (2) what command copies the configuration from RAM into NVRAM?
- copy running-config tftp
 - copy tftp running-config
 - copy running-config start-up-config
 - copy running-config startup-config
 - copy start-up-config running-config
 - copy startup-config running-config
37. (2) What type of router memory is used to store the configuration used by the router when it is up and working?
- RAM
 - ROM
 - Flash
 - NVRAM
 - Bubble
38. (2) Explain what Flash is used for?
39. (2) What does the ROM do?
40. (2) In which of the following configuration modes of the CLI could you issue a command to reboot the router?
- User mode
 - Enable mode
 - Global config mode.
 - Interface config mode.
41. (2) Which of the following modes of the CLI could you configure a description of Ethernet0?
- User mode
 - Enable mode.
 - Global configuration mode.
 - Setup mode.
 - Interface confiruation mode.

42. (2) What does NV stand for in NVRAM?

43. (2) What is ARP used for?

44. (3) Circle three of the commonly used UDP services from the list below.

SQL	SMTP	TELNET	SSH	TFTP
SSL	DNS	DHCP	FTP	POP3

45. (3) Given the IP address 134.141.7.11 and the mask of 255.255.255.0, what is the network address?

46. (3) Given the IP address 200.1.1.130 and the mask of 255.255.255.224, what is the network address?

47. (3) Given the IP address 193.193.7.7 and the mask of 255.255.255.0, what is the network broadcast address?

48. (3) Given the IP address 200.1.1.130 and the mask of 255.255.255.224, what is the network broadcast address?

49. (3) Given the IP address of 200.1.1.130 and the mask of 255.255.255.224, what are the usable IPs in this network?

50. (3) Given the IP address 134.141.7.7 and a mask of 255.255.255.0 what are the usable IPs in this network?

51. (4) Given the IP of 220.8.7.100 and the mask of 255.255.255.240, what is the network broadcast address AND the network address?

52. (3) How does CIDR help reduce the size of Internet routing tables?

53. (3) Give me three different private IPs. One from each of the Class A, B and C ranges.

54. (30) IP DESIGN:

Your network is: 208.186.104.0/23

You have the following requirements for the following networks.

/25, /25, /26, /27, /27, /29, /30, /30, /28, /26, /27

Use the full /23 and break it up accordingly. Simply list in the order of appearance the (1) Network Address with the appropriate slash (/XX) notation.

EXAMPLE: 10.10.10.0/28

10.10.10.16/29, etc

Use the next page if necessary.