

TEST #3
SOUTHERN METHODIST UNIVERSITY -- EETS 7315
April 27, 2011

STUDENT -- READ CAREFULLY BEFORE SIGNING:

CERTIFICATION OF TESTING ENVIRONMENT (To be signed after taking test):

ALL STUDENTS:

I am familiar with the Honor Code of Southern Methodist University. I am also aware that different students take this test at different times. I have not received information about the contents of this test and I will not give information about its contents to others. I will not cheat and I will not tolerate those who cheat.

Agreed to and Signed _____
(Must be signed by student to be counted)

FOR OFF-CAMPUS SITES ONLY:

I distributed and collected these test materials on a _____-minute interval on _____ (date).

Signed _____
(Must be signed by proctor to be counted)

Grading Issues: After you receive your graded paper, if you have an issue with the way it was graded, write a note in the space below, stating which problem numbers should be rechecked, make a back-up copy, and return the original paper to Dr. Baker for checking.

PRINT Name _____

Student ID # _ _ _ _ _

Location _____

SOUTHERN METHODIST UNIVERSITY -- EETS 7315

TEST #3 — CLOSED BOOK, CLOSED NOTES

April 27, 2011

Instructions: You are allowed to use one 3 by 5-inch note card, written on both sides. The "Location" (above) is where you want your graded test returned. For off-campus sites, your home address is recommended. On-campus students just write "campus." For multiple-choice questions, circle the letter in front of the one-best answer. Each problem counts 3% unless otherwise noted.

- 4% 1. In about 40 words or less, explain the difference between Ethernet I and Ethernet II. Which is sometimes called "DIX"?

- 4% 2. In about 30 words or less: Explain how a slight increase of attempted throughput can cause an Ethernet to collapse.

- 4% 3. In about 30 words or less, explain the Ethernet "Back-off Algorithm." _____

6% 4. For what two types of media are multiport repeaters needed to build multipoint Ethernet LANs, and for what type are they not needed?

Needed: _____ and _____

Not Needed: _____

4% 5. In about 30 words or less, explain why any local area network should be considered as a subnetwork of a larger future network. _____

4% 6. About 30 words or less: In calculating the E bits in a Basic Rate ISDN interface at the "T" reference point, explain the phrase "0 wins."

4% 7. Using numbers 1, 2, 3, 4 & 5, place the following order from the largest to the smallest:

___ CANs

___ WANs

___ PANs

___ LANs

___ MANs

6% 8. In this course, three different methods of achieving transparency have been discussed. In each blank below, name at least one protocol or system using each of the three.

Bit or character stuffing _____

Length field _____

Fixed length of payload _____

3% 9. Which of these is a kind of SAPI?

a. Length field in LLC header

b. FCS field in Ethernet

c. Protocol field in IP header

d. Fragmentation Permitted Flag in IP

e. Sequence Number field in TCP header

- 3% 10. The E bit in D-channel layer 1
- helps resolve collisions in the D-channel.
 - prevents collisions in the D-channel.
 - detects collisions in the D-channel.
 - counts collisions in the D-channel.
 - None of the above
- 3% 11. The success of Ethernet is one example of the truth of
- Frankenstein's Syndrome.
 - Linus' Syndrome.
 - Baker's Law.
 - Murphy's Law.
 - Coden's Law.
- 3% 12. To say that Ethernet is "non-deterministic" means that there is no guarantee that
- a message will reach its destination on the first transmission.
 - a message will reach its destination on the Nth transmission.
 - a message will ever reach its destination.
 - All of the above
 - None of the above
- 3% 13. In CSMA/CD networks, the minimum duration for which a frame should be transmitted in order to avoid undetected collisions is
- greater than or equal to the time required by the frame to travel the length of the LAN.
 - greater than or equal to the time required by the frame to travel twice the length of the LAN.
 - greater than or equal to the time required by the frame to travel half th length of the LAN.
 - greater than or equal to the time required by the frame to travel the distance between adjacent terminals.
 - None of the above
- 3% 14. In attempting to forward a datagram through the Internet, a router always inspects
- the source IP address.
 - the destination IP address.
 - the source MAC address.
 - the destination MAC address.
 - the destination port number.
- 3% 15. Two types of devices that can virtually eliminate collisions in Ethernet are:
- Repeaters and Routers
 - LAN Switches and Routers
 - LAN Switches and Repeaters
 - Bridges and Routers
 - All of the above

- 3% 16. Which device receives, reshapes, retimes, amplifies and re-transmits pulses?
- Router
 - Bridge
 - Repeater
 - LAN Switch
 - None of the above
- 3% 17. An Internet "socket" is
- a Layer 1 entity.
 - the combination of an IP address and the IP Protocol field.
 - an RJ-45 connector.
 - the combination of an IP address and a TCP port number.
 - the combination of an IP address and a MAC DA field.
- 3% 18. When this protocol is used, there is usually some type of human real-time (interactive) involvement in the system.
- UDP
 - TCP
 - IP
 - LLC
 - HDLC
- 3% 19. The "Eye-Pattern" for ISDN Layer 1 Basic Rate is
- A graph of all legitimate Voltage pulses versus Current between the NT1 and End Office.
 - A graph of all legitimate Voltage pulses versus Time between the NT1 and the End Office
 - A graph of all legitimate Voltage pulses versus Current between the terminal and the NT1.
 - A graph of all legitimate Voltage pulses versus Time between the terminal and the NT1.
 - None of the above
- 3% 20. Which of the following is not part of the TCP/IP Protocol Suite?
- UDP
 - FTP
 - SMTP
 - TCP
 - HDLC

28% **On the next page are 14 problems, each worth 2%. At the top of the page is a pool of possible answers, each next to a letter or symbol. Below these are the problems with blanks in front. Place the letter or symbol of each correct answer in the blank in front of the problem. Do not use an answer more than once unless it is repeated in the pool.**

POOL of possible answers:

- | | | |
|---------------------------|-------------------------|----------------------------------|
| A. BGP | M. 7 | @. 32 |
| B. 16 | N. Application | ?. Token bus |
| C. IEEE 802.3af | P. Wi-Fi | #. Virtual Circuit |
| D. Packet | Q. OSPF | %. OpenFlow |
| E. Bearer Channel | R. 2 | AA. Token ring |
| F. Bluetooth | S. DHCP | BB. 2 |
| G. Abbreviated addressing | T. Real circuit | CC. LAN |
| H. 1 | V. Aloha | DD. Perfect Scheduling Algorithm |
| J. PVC | W. Broadband | EE. MAC |
| K. Passive bus | X. LAN Switch | FF. Datagram |
| L. ARP | Z. Service access point | GG. 0 |

21. ____ Native mode of D-Channel
22. ____ Native mode of IP
23. ____ Power over Ethernet cable
24. ____ Selects or indicates software
25. ____ IEEE 802 protocols cannot reach above this layer
26. ____ Most significant bit in TCP/IP
27. ____ PAN
28. ____ Allows branching in physical medium
29. ____ Can eliminate collisions
30. ____ Number of bits in Ethernet FCS
31. ____ Converts IP address to MAC address
32. ____ Ensures fairness between terminals on a passive bus
33. ____ Original CSMA/CD system
34. ____ Referring to ISDN Basic Rate, it takes this many Layer 1 frames to make one byte (octet) of LAPD protocol.