

TEST #1
SOUTHERN METHODIST UNIVERSITY — EETS 8301
September 29, 2005

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.

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 _____ (fill in) _____ (date).

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

4% 8. For the following generator polynomial, sketch the feedback register:

$$x^{12} + x^9 + x^2 + 1$$

4% 9. Assume that the initial contents of the register in Problem #8 are all-zero, and a 1 is transmitted. That is, a binary one is permitted to enter the circuit you have shown. Show the contents of the register after one shift cycle:

4% 10. Read this problem carefully: Two HDLC terminals, "X" and "Y", are connected via a point-to-point digital circuit and are operating in the UN Class. "Y" has 3 frames of data to send, but the window is only 2. "X" sends the command shown. Show **only** Y's response. Do not show additional commands or responses. Assume that the counter modulus is 8. There are no transmission errors.

X: |Y,I4,7P|

Y:

8% 11. Two HDLC terminals, "X" and "Y", are connected via a point-to-point digital circuit and are operating in the BA class. "X" has one frame of data, and "Y" has 3 frames of data to send, but the window is only 2. "X" sends the frame shown. Show Y's first data frame starting while X is sending the frame shown. Show the entire series of frames in both directions until all 3 frames of Y's data have been sent and all data in both directions has been acknowledged. Option 8 is in effect. (No I frames in response.)

X: |Y,I3,2|

Y:

X:

Y:

- 3% 12. USRT receive functions do NOT include which of the following?
- Remove 0 after five consecutive 1's.
 - Check FCS.
 - Serialize bits.
 - Recognized aborts.
 - Check frame length.
- 3% 13. In 15 words or less, explain how you can determine in what layer a subsystem is operating.
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- 3% 14. The following are sets of bit sequences in order of time. Which set is an HDLC control field for an Information Transfer Frame having $N(S) = 3$, $N(R) = 5$, and $P = 1$?
- 01101101
 - 11101101
 - 01011011
 - 00111101
 - 10000101
- 3% 15. The response to an HDLC poll containing a transmission error is
- request for retransmission.
 - negative acknowledgment.
 - request for pullback and retransmission from the errored frame.
 - no response.
 - None of the above
- 3% 16. For BA class of operation in HDLC, which of the following statements is true?
- There are two and only two TEs in the link. One TE is the primary and the other is the secondary.
 - There are two and only two TEs in the link. A response TE cannot initiate a transmission unless it is polled.
 - There are two and only two TEs in the link. A TE may respond to any command.
 - There is one command TE and one response TE. Once polled, the response TE may send more than one frame, up to the window size.
 - There are one primary TE and one or more secondary TEs. The primary must poll a secondary before the secondary can transmit.
- 3% 17. Which capability is NOT required in a connectionless OSI-compatible data link protocol?
- framing
 - data transfer
 - transparency
 - error detection
 - flow control

- 3% 18. Which of the following is correct?
- a. Presentation SDU = Application PDU + Presentation PCI
 - b. Data-Link PDU = Data-Link PCI + Network PDU
 - c. Network PDU = Data-Link PDU - Data-Link SDU
 - d. Network PDU = Transport PCI + Transport SDU
 - e. None of the above.
- 3% 19. Which of the following is NOT true about tunneling?
- a. It is convenient.
 - b. It requires fewer total bits transmitted.
 - c. It can be used for secure communications.
 - d. It requires more headers to be sent.
 - e. None of the above (all are true).
- 3% 20. Which of the following data-link functions can be used to prevent collisions in a multipoint environment?
- a. Sequence control
 - b. Flow control
 - c. Checkpointing
 - d. Line control
 - e. Error checking

PLEASE TURN TO THE NEXT SHEET.

30% **MATCHING:** Below is a pool of possible choices to be matched to the questions below. In the blank next to each question, place the symbol representing your best choice from the pool. Each pool answer is to be used only once. Not all pool answers will be needed. 2% each.

Pool Answers

A. Low impedance	N. Unbalanced voltage	\$. 32
B. 7	P. 6	AA. Frame Relay Forum
C. TE	Q. XID	CC. TEST
D. Zero-insertion	R. RS 232	DD. 47
E. Sequence Control	S. 0	EE. Address field
F. UI	T. Flow Control	FF. 8
G. N-1 connection	V. FCS field	GG. 4
H. ITU	W. NT	HH. Session
J. Framing	X. 16	JJ. 1
K. 3	Z. P & F bits	KK. 2
L. RR	%. 7	LL. Transparency
M. USB	@. 53	MM. ISO

21. ____ The number of bytes in an AAL1 payload.
22. ____ HDLC operates in Layer ____ of OSI.
23. ____ What is the method for handling line control in the UN Class of HDLC?
24. ____ Which OSI layer is responsible for end-to-end sequence control?
25. ____ When a receiver can tell a sender to pause in sending, it is called
26. ____ In Start/Stop transmission, bit-timing is handled by the clocks in the ____.
27. ____ The name of the HDLC command for sending connectionless data is
28. ____ For Modulo 8 counters, the next N(S) after N(S)=7 is
29. ____ The number of bits in the standard LAN Frame Check Sequence is
30. ____ An example of a publicly-funded standards organization is
31. ____ An important basic limitation of the EIA 232 interface
32. ____ Standard bit numbering has MSB as bit # ____
33. ____ An intermediate system that is making autonomous routing decisions is operating in Layer
34. ____ After finding the start bit, a receiving TE samples incoming data at ____ times the bit rate
35. ____ An example of an intelligent serial interface.
36. ____ An example of an obsolete serial interface.