

Name:

Matric No:

EE3204 (Part 1) Quiz Date: 02 March 2017 Time: 45 minutes

Lecturer: Assoc. Prof. Mohan Gurusamy

Instructions: Answer ALL questions. For each question, enter the most appropriate choice in the ANSWER TABLE in page 2. Only the entries in ANSWER table will be considered for marking. Each Question carries 1 mark. Maximum marks is 15. It is a CLOSED book test.

1. What is the minimum bandwidth required if ten 1000-Byte frames are to be transmitted in one second?
(a) 8 Mbps (b) 8 Kbps (c) 10 Kbps (d) 80 Kbps
2. If a packet is 10 μ s wide on a 10-Mbps link, what is the packet size (in bits)?
(a) 1 (b) 10 (c) 100 (d) 1000
3. Assume that host A is transferring a large number of frames to host B using sliding window protocol with window size 10 through a 100 km-long 10 Mbps link with a propagation delay of 5 μ s per km. Assume that each frame carries 125 bytes of data, the communication is error-free and every frame is individually acknowledged. How many frames are transferred per second approximately?
(a) 909 (b) 1,000 (c) 9,090 (d) 10,000
4. IP addresses are more attractive than Ethernet hardware addresses for the purpose of routing, because
(a) IP addresses are hierarchical whereas Ethernet addresses are not.
(b) IP addresses are just 4-byte long whereas Ethernet addresses are 6-byte long
(c) IP addresses aid software-based routing whereas Ethernet addresses aid hardware-based routing
(d) IP routers are less expensive than Ethernet switches
5. The acronym CS stands for
(a) Computer Science
(b) Circuit Switching
(c) Carrier Sense
(d) Collision Sense
6. What is the bit sequence transmitted for the message bit sequence 11101 with the CRC computed using the divisor polynomial x^2+1 ?
(a) 1110100 (b) 1110101 (c) 1110110 (d) 1110111
7. With sentinel-based framing, at most how many extra bits need to be transmitted for a 20000-bit frame?
(a) 0 (b) 5 (c) 2500 (d) 4000
8. Two hosts A and B attempt to transmit on an Ethernet. Each host has a steady queue of frames ready to send. At an instant of time, the two hosts attempt to send their frames simultaneously and collision occurs. We say that the hosts enter into a backoff race. Suppose that this collision is the second and fourth collision experienced by host A and B, respectively. What is the probability that host B wins the race? A host is said to win if it transmits its current frame successfully before the other host and also before any other collision in the network.
(a) 6/64 (b) 54/64 (c) 4/64 (d) 16/64

9. Consider a sliding window based flow control protocol that uses a 3-bit sequence number and a window of size 7. At a given instant of time, at the sender, the current window size is 2 and the window contains frames with sequence numbers {3,4}. Now the sender receives RR2 and updates the window. What does the new window contain?
 (a) {3,4,5} (b) {3,4,5,6} (c) {3,4,5,6,7} (d) {3,4,5,6,7,0}
10. Which of the following statements is TRUE?
 (a) In DSL-based access network, voice and data are transmitted using TDM over the dedicated line from home to central office
 (b) The Cable Modem-based access network is a shared access network connecting homes and cable headend
 (c) A drawback of PON-based access network is “high BER”
 (d) None of the above
11. Which of the following statements is FALSE?
 (a) An Ethernet frame contains an IP packet within itself
 (b) An IP packet contains an Ethernet frame within itself
 (c) CRC bits usually appear at the end of a frame
 (d) Ethernet switch forwards a frame based on 6-byte destination address
12. A switch has four ports labeled 1 through 4. It receives a frame from host A attached to port 1 to host B attached to port 2 when the forwarding table is empty. The switch will forward the frame through
 (a) Port 2 only (b) Ports 2,3, and 4 only (c) Ports 1,2,3, and 4 (d) none of the ports as it has not yet learnt where host B is located
13. Which of the following is TRUE for an Ethernet switch based extended LAN?
 (a) backward learning
 (b) shortest path spanning tree
 (c) possibility of bandwidth waste as some ports may not be used for frame forwarding
 (d) All of the above
14. To detect a collision, in a broadcast Ethernet LAN, the frame transmission time must be at least round-trip-time (RTT)
 (a) TRUE (b) FALSE
15. The maximum number of bits that can be transmitted in one second if a 8 MHZ wide TV channel is used as a network link is approximately ____ Mbps. Assume that the signal-to-noise ratio is 60 dB.
 (a) 60 (b) 80 (c) 120 (d) 160
16. What is your expected score in this quiz?
 (a) ≤ 5 (b) 6-10 (c) 11-13 (d) 14-15

ANSWER TABLE:

Qn	1	2	3	4	5	6	7	8
Ans	d	c	c	a	c	d	d	a
Qn	9	10	11	12	13	14	15	16
Ans	d	b	b	b	d	a	d	