MC questions for Unit 5

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Question 1

Match each MAC method to the class it belongs to.

CDMA	Channelization
CSMA	Random Access
Token Ring	Dynamic Scheduling

Question 2

32 users share a 2.048 Mbps link using FDMA. *How much bandwidth does each user receive?*

- (•) 64 kbps all the time
- ( ) 64 kbps for 1/32 second
- ( ) 2.048 Mbps for 1/32 second.
- ( ) More than 64 kbps due to statistical multiplexing.

Question 3

32 users share a 2.048 Mbps link using TDMA. Each user sends 8 bits at the full rate when it is their turn. *How frequently does a user get to transmit?*

- ( ) 4 ms
- ( ) Any period can be used ; it must be specified.
- (•) 125 us
- ( ) 4 us

Question 4

What is the correlation between (-1, 1, 1, -1, 1, -1, 1, 1) and (1, 1, 1, -1, -1, -1, 1, -1)?

- 0
- 0.25
- 2
- 4

Question 5

What is the maximum throughput of slotted ALOHA when there is a large number of users?

- 0.184
- 1/e
- 0.434
- 1/2e

Question 6

Consider a reservation system, which supports 30 users. Each reservation interval consists of 30 minislots, each of duration 5 micro-seconds. Assume that a packet of length 120 bytes can be transmitted in each time slot with the transmission rate of 10 Mbps. What is the *maximum* throughput of the system?

- 0.31
- 0.71

- [x] 0.95
- [ ] 1

Question 7

Following Question 5, we now suppose each user is active with probability 0.5, what is the *average* throughput of the system?

- [ ] 0.475
- [ ] 0.550
- [ ] 0.854
- [x] 0.906

Question 8

Suppose three nodes are involved in a collision at time slot T and the tree algorithm is used to resolve the collision. What is the minimum possible number of slots for the three nodes to successfully transmit their packets, *excluding* time slot T?

- [ ] 3
- [x] 4
- [ ] 5
- [ ] 6