CSE320
Optional Assignment/Practice Sheet 05
Chapter: MAC Protocols

1.	List down the medium access protocols (MAC protocols) that are collision-free.
2.	Efficiency of pure ALOHA is half of the slotted ALOHA technique? **Validate** with diagrams and put a comment.
3.	A 2 km long broadcast LAN has 10^7 bps bandwidth and uses CSMA / CD. The signal travels along the wire at 2 x 10^8 m/sec. **What** is the **minimum packet size** that can be used on this network?
4.	Suppose, It is 02:00:00 PM in your clock and you start transmitting the frames from station A. The network is using CSMA/CD, given the 10 minutes propagation time (Pt) from the station A to station D including all the necessary delays, **what** is the time in your clock after completing the transmission of the frames if you want to detect the possible collision in the worst case scenario. **What** will happen if you have stopped transmitting before the time that you have calculated. Validate your answer with a CSMA/CD diagram.
5.	Also cover the basics of other MAC protocols.

Sample Practice problem on CSMA/CD.

Q. In a CSMA / CD network running at 1 Gbps over 1 km cable, the signal speed in the cable is 200000 km/sec. What is the minimum frame size?

===Solution===

Given:
Bandwidth = 1 Gbps
Distance = 1 km
Speed = 200000 km/sec
---Calculating Propagation Delay---
Propagation delay (Tp)
= Distance / Propagation speed
= 1 km / (200000 km/sec)
= 0.5 x 10-5 sec
= 5 x 10-6 sec
---Calculating Minimum Frame Size---
Minimum frame size
= 2 x Propagation delay x Bandwidth
= 2 x 5 x 10-6 sec x 109 bits per sec
= 10000 bits

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===Solution to question no 4===