East West University

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Course: CSE405, Computer Network Sec: 01

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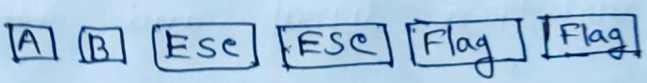
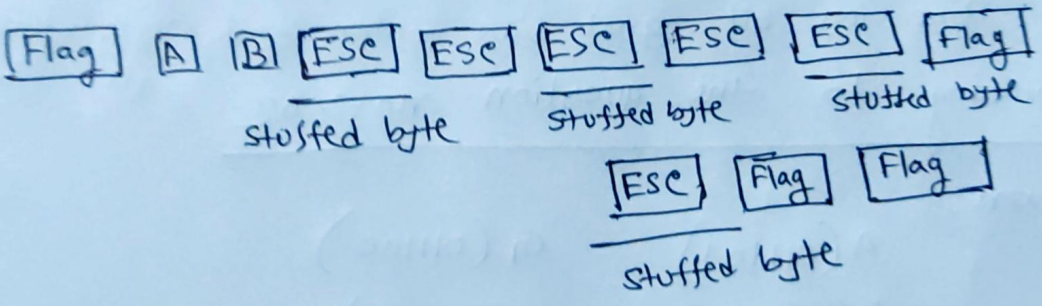
Answering to the question no → 01

a) Given,

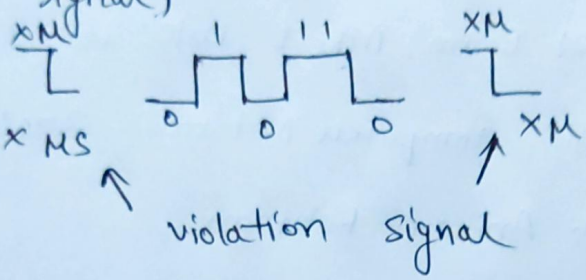




b) 'Physical Layer Violation' is a framing method where a frame of data is transmitted bitwise from 'Physical Layer'.

suppose a bit patter of a frame is 010110.

So the signal,



violation signal is generated in physical layer. When data is transmitted then receiver detect start and end violation signal and ~~date~~ extract frame from signal. There are ~~of~~ certain time for bit signal and violation signal less than that time.

Answering to the question no → 02

Given,

A(011101)
B(011110)
C(011010)
D(010010)
E(011001)
F(011111)
G(011100)
H(011011)

If B, C, D, G, H are interested to acquire the chanel then

	D	1	2	3	4	5
B(011110)	0	1	1	1	1	0
C(011010)	0	1	1	0	X	X
D(010010)	0	1	0	X	X	X
G(011100)	0	1	1	1	0	X
H(011011)	0	1	1	0	X	X
OR	0	1	1	1	1	0

winner is 011110, which is B. So, B will acquire the channel.

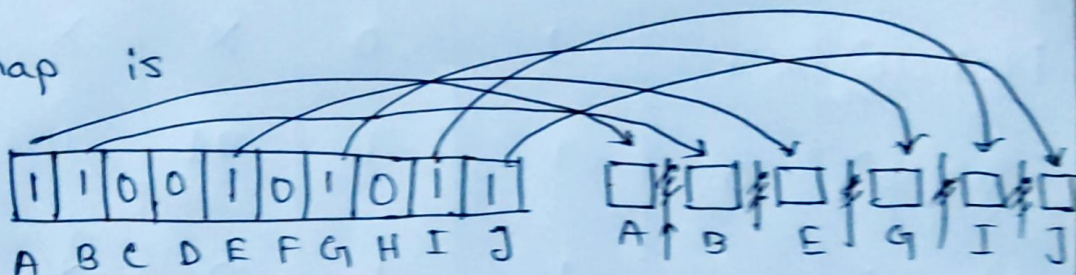
In general there are maximum 0 in node D. So it has the less chance of winning. So, D can get into starvation in binary count down.

Answering to the question no → 03

Contention phase = number of host × τ

= 10 τ (10 host given)

Bitmap is



When bit map is generated then every node has the bit map. 'G' node will track of it's turn when A, B, E will transmit data. After them 'G' can track him it is his turn to transmit data.

Answering to the question no →04

If the number of collision is 4

the element of set $= 2^4 = 16$

$= \{0,1,2,3,4,5,6,7,8,9,10,11,12,13,14,15\}$

Given,

set of A and B and C

$\{0,1,\cdots,6,7\}$

$\{0,1,2,3\}$

$\{0,1,2,\cdots,14,15\}$

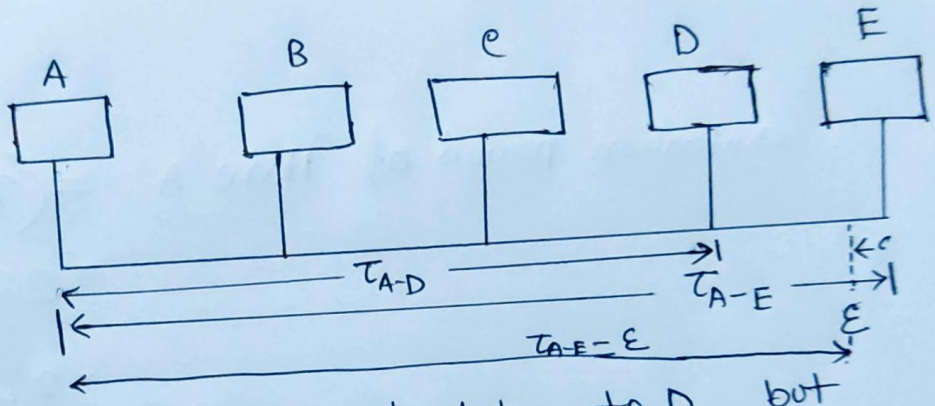
when collision is detected : the Node will wait until = n^{th} collision × 512 bit time.

Node A, B, C has the possibillity of getting collision 3 at a time 2 at a time.

If they randomly pick any number from set, and suppose A, B, C pick 4 at a time then A, B, C will wait 4X 512 bit time unit. if two of them pick same they the will transmit data after set element X 512. then other node will transmit data freely.

Answering to the question no→05

Given, Figure



If, A want to transmit data to D, but the source don't know the position of the destination. So, the transmission signal of source will propagate through the chanell till the end host present in the chanel. So, A will propagate to E. So,

propagation delay (A-E) = τ_{A-E}

In the worst case scenario, if node A propagate to node E and if collision is detected then A will propagate back to A. So, collision detected in $\tau_{A-E} - \varepsilon$.

$\tau_{A-E} - \varepsilon$ →

← $\tau_{A-E} - \varepsilon$

∴ Contention period of Node A, $= (\tau_{A-E} - \varepsilon) + (\tau_{A-E} - \varepsilon)$

$= 2\tau_{A-E}$

$= 2\tau_{A-E}$