Networks Sub-module Assignment

Answers for Part 2 and Part 3

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Part 2:

1. Which of these frames will be received by selected ports.

The frames that will be received by port 0 are: Frame 1 and 2

The frames that will be received by port 1 are: Frame 0,1,3

The frames that will be received by port 2 are: Frame 0,1,2

The frames that will be received by port 3 are: Frame 0 and 2

2. Give the switching table that the switch forms after forwarding these 4 frames .

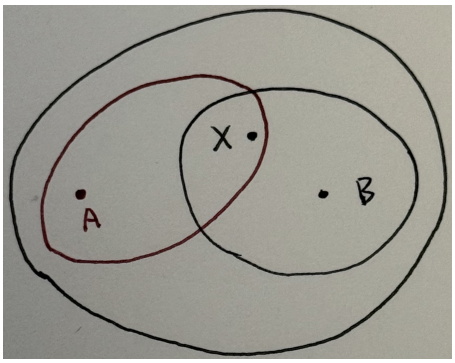
From frame 0-2 switching table will learn and record MAC Address of ports
But for frame3, the source and destination are known.
The table shows below :

	Mac Address	Port
Frame 0	60-4A-18-B2-63-DA	0
Frame 1	AC-69-D6-57-24-A3	3
Frame 2	10-0C-2B-AF-18-7B	1

Part 3:

1. Sketch the above described topology to include wireless nodes X, A, B, and their coverage.

The sketch shows below:



2. Analyse the above transmission situation and describe the transmission procedure.

(RTS CTS Not included in this situation,because question does not mentioned. But also give the answer in red font that consider RTS and CTS)

For node A

At 30 μs , A is available to send packet, but the channel is occupied by X, channel is busy until 100 μs.

At 100 μs , X's package transmission is complete, A should wait for DIFS (10 μs)

At 110 μs , A starts waitting for backoff timer (10 μs).

(If include RTS CTS ,A after waitting for backoff timer.A will wait for X receive RTS at 120μs then waits for SIFS(10 μs)then X send CTS then waits for SIFS(10 μs).at 140μs A will start transmitting it takes 100μs then waits SIFS (10μs), So whole time be 350μs.)

At 120 μs , A starts the transmission.

The transmission of A needs 200 μs to complete and waits for a SIFS (10 μs)

So the whole time of transmission of A=120 us+ 210 us= 330 μs

For Node B:

(If RTS CTS included, B backoff timer starts again at 350μs, then whole time for B needs to add 2 more DIFS time just like situation in node A, whole time will be 500μs)

At 70 μs , B is available to send packet, but the channel is occupied by X, busy until 100 μs.

At 100 μs, the channel is free, B starts waitting DIFS (10 μs).

At 110 μs, B starts waitting for backoff timer (20 μs).

At 120 μs B senses that the channel is busy because A started its transmission at 120 μs, backoff timer paused and 10 μs left.

So B waits until A completes its transmission:

after A's transmission (330 μs) ,At 330 μs , the channel is free again,

At 330 μs , B starts waitting DIFS (10μs) again.

At 340μs, B starts backoff timer again(10μs left)

At 350μs ,B needs 100 us to complete the transmission and waits for a SIFS (10 μs).

So Completion time = 350 us + 110us = 460us.