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Mid Semester Exam Spring 2020

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Course Title: Data Communication

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Section: A

Answer to the question no-1 (a)

My id is 17101128

∴ X is = 8+1 = 9

Y is = 2+1 = 3

For mesh tropology which is implemented in X=9 computers, there will be $n(n-1)/2$ links needed.

So total links are = $\frac{9\times(9-1)}{2}$

$= \frac{9\times8}{2}$

$= 36$

For star tropology which is implemented in Y = 3 computers will needed n th links.

so, the total links are = 3

So total links for X room and Y room are

36 + 3 = 39 links.

The mentioned two tropologies are star tropology and mesh tropology.

Between star tropology and mesh tropology ~~star~~ mesh tropology is more secure. So, I prefer mesh tropology for a secure network connection. ~~I prefer~~

In mesh tropology, every device is connected with each other. So, if one pc is ~~con~~ trying to communicate with another pc, it will be an one to one communication between them. ~~So, there is a~~ There will be no medium between them to control the data or data flow. So, it is more secure. That is why I will choose mesh tropology for a secure network.

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Answer to the question no-1 (b)

The one advantage and one disadvantages ~~of~~ for each of these two data flows are given below:

Advantage:

Half duplex: ~~The~~ If we want an unidirectional communication or one way communication. ~~like~~ or both way communication but one at a time, then it is best to choose half duplex data flow. ~~example: walkit~~ example: Walkie-talkies.

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Full duplex: If we want to communicate in both ways simultaneously ~~or~~ then full it is best to choose full duplex. example: Telephone conversation.

Disadvantage:

Half duplex can not ~~reseet~~ receives and sends data in at the same time.

Full duplex can not communicate with each other ~~is~~ if there is no dedicated path.

Answer to the question no – 2 (a)

My id is 171011128

Here x is $= (8)^2 \bmod 6 = 4$

Y is $= (8+1) \bmod 6 = 3$

So, in my case the communication will be done between PC4 and PC 3 where sender is PC4 (me) and receiver is PC3 (my friend).

Sender Mac	Receiver Mac	Sender IP	Receiver IP	Port no for Sender	Port of receiver process	Data	trailer
Mac of E	Mac of R40	IP of E	IP of D	6000	7000	Data	trailer
Mac of E	Mac of R40	IP of E	IP of D	6000	7000	Data	trailer
Mac of R41	Mac of R31	IP of E	IP of D	6000	7000	Data	trailer
Mac of R41	Mac of R30	IP of E	IP of D	6000	7000	Data	trailer
Mac of R30	Mac of D	IP of E	IP of D	6000	7000	Data	trailer

Answer to the question no-4.

~~SAF~~ My ID is = 17101128

$\therefore$ $X = 8+1 = 9$ MHz $= 9000$ Hz

$Y = 2+1 = 3$

$\therefore$ SNR $= 10 \times 3 = 30$

$\therefore$ Bit Rate $= 2 \times 9000 \times (1+30) \log(1+30)$

$=$

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