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Section: A

Course Code: CSE 303

Cours Title: Data Communication

Date: 25-08-2020

Ans. to the Q. no. 1

(a)

ID = 18101035

$x = 35+1 = 36$

$x = 5+1 = 6$

$Y = 3+1 = 4$

For mesh topology   we know:

$$\frac{n(n-1)}{2} = \frac{6(6-1)}{2} = \frac{6 \times 5}{2} = 15$$

15 links for mesh topology

Mesh topology is in more secure
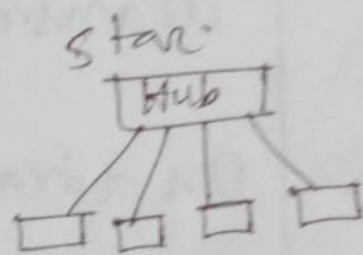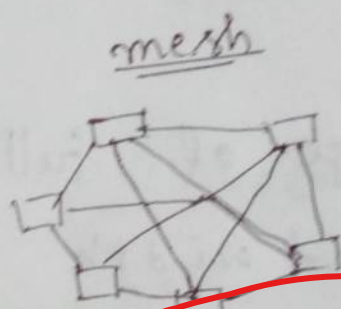
network and i want to choose.

The reasons:

1. No difficult 'data traffic issue.

2. Mesh topology is reliable and failure of one link doesn't effect other link.

3. Mesh topology is secured because it has point to point link and no one can not access it.

On the other side star topology have a network issue.

Thats why mesh topology is more secure.

mesh   star

(b) Full full duplex is choosed. The two type data flow is half duplex and full duplex. Advantage and disadvantage of this :

Half duplex : Both transmit and receive possible.

Disadvantage: * it can not allow transmit data at the same time. thats why it take too time to transmit data and receive data.

full - Duplex:
Transmit and receive simultaneously.

6

Disadvantage of full duplex is no proper band width utilization as the same line is used for sending and receiving data at the same time.

Ans. to the Q. no. 4

b

The difference between bandwidth and throughput:

Bandwidth:

* Bandwidth in bit per second, refers to the speed of bit transmission.

* Bandwidth is a theoretical measure of how much data transfer from source to destination.

* Bandwidth is directly related to the speed.

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Throughput:

* Throughput is an actual measure of how data successfully transfer from source to destination.

* Throughput measure speed.

* also measure how fast data transfer.

Throughput cannot exceed the bandwidth because bandwidth is the number of bits that can be sent on a link in one second. throughput is amount of data sent. So it can not exceed bandwidth.

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(a)

$X = 5 + 1 = 6 \, MHz$

$Y = 3 + 1 = 4 = 10 \times 4 = 40 = SNR$

(b) $C = B \cdot \log_2 (1 + SNR)$

$= X \log_2 (1 + Y)$

$= 6 \times 10^6 \log_2 (1 + 40)$

$= 6 \times 10^6 \log_2 (41)$

$= \cancel{1.91 \times 10^{19}}$

$=$

for Signal level: we have take some
thing lower. ~~than~~ using Nyquist formula:

Ans. of C $= 2 \times Bandwidth \times \log_2 L$

$= 2 \times 6 MHz \times \log_2 L$

$=$

Ans. to the Q. no. 2

a

$$X = (5)^r \mod 6$$
$$= 25 \mod 6$$
$$= \cancel{4}$$

$$Y = (25 \mod 6) + 1$$
$$=$$

Sender MAC	Receiv	Sender ID		Routting sender	Reciva	
MAC of A	MAC of B	ID of	ID of B			data

b)

like Data link layer Error control flow control performed in transport layer in end - to end rather than on single link ⟶

Data link: Data link layer is responsible for framing, physical addressing, flow control, error control, access control.

Data link layer is responsible for moving frames from one hop to the next.

Transport layer: Transport layer also handle flow control and error control.

b

like Data link layer Error control flow control performed in transport layer in end - to end rather than on single link ⟶

Data link: Data link layer is responsible for framing, physical addressing, 'flow control, error control, access control

Data link layer is responsible for moving frames from one hop to the next.

Transport layer: Transport layer also handle flow control and error control.

flow control: like data link layer transport layer is responsible for flow control. flow control at this layer is Performed end to end reather than aceross single link.

Error Control: Transport layer is responsible for error control. Error control at this layer Performed process to process. Sending transport layer makes sure that the entire message annive at receiving transport layer. Error collection is also achieve

So, this performance is also done by data link layer

So, the statement is explained.