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Section: A

Subject & Code: CSE 303

Subject : Data Communication

Answer to the Question no: 1.

My id is 18101011

$X = 1+1 = 2$

$Y = 1+1 = 2$

here one room X computers connected with the mesh topology and other room has Y computers connected with star topology.

We know that, Mesh topology dedicated point to point link to every other nodes. Star topology dedicated point to point link only to a central controlled which is called hub.

b) In half duplex mode is like one lane road with traffic allowed in both ~~transmit~~ directions when one device is sending and other can only receive.

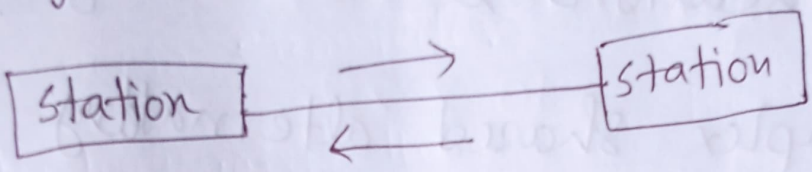

figure: half duplex

Ex: In full duplex mode both station can transmit and receive simulataneously. Its like two way street.

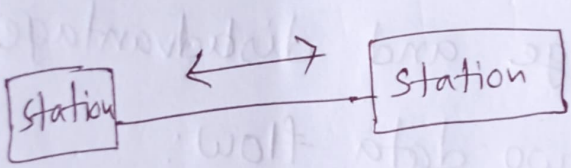

figure: full duplex.

For bandwidth we used half duplex mode. we know that half duplex is used to connect bandwidth as only a single communication. It have a

channel with 1000bps bandwidth.
So, I choose half duplex data flow.
By using this half duplex my communication will be very easier.
Half duplex shared alternately between the two direction so, I choose it.

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Now advantage and disadvantage for each of these two data flow:

→Half duplex is used to conserve bandwidth as only a single communication chanel is needed, which is shared alternately between the two directions.

In full duplex it's used when communication is both direction

is required all the time without any delays.

→ Half duplex is better than simplex but less than full duplex.

Full duplex is the highest performance among the modes.

Answer to the question no: 2(a)

$X = (1)^2 \bmod 6$

$Y = (1+1) \bmod 6$

$= 2 \bmod 6$

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Answer to the question no: 4(a)

$X = 1+1 = 2$

$Y = 1+1 = 2$

SNR channel $= 10 \times (2 \times 10)$

$= 10 \times 20$

$= 200$

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$C = B\log_2(1+SNR) = 106 \log_2(1+200)$

$= B\log_2 106 \log_2(201) = 122$ Mbps.

b) Difference between bandwidth and throughput.

Bandwidth	Throughput.
① It is defined as the potential of the data that is to be transferred in a specific period of time.	① It is the determination of the amount of data is transmitted during a specified time period of time.
② physical layer property.	② work at any layer
③ Not depend on the latency.	③ It depends on the latency.
④ It is not affected by physical obstruction.	④ It can be easier affected by change in interface.

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(5) It is the speed of tap at water is coming out.	(5) It is the total amount of water that comes out

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(10)

Answer to the question no: 2(a)

$X = (1)^V \bmod 6 = 1$.

$Y = (1+1) \bmod 6 = 2$.

my PC is PC1, my friend'll be in PC2

from PC_1 to PC_2

frame:

MAC of D	MAC of R_2O	ID of D	ID of E	6000	7000	Data	trailer

Mac of R_1	MAC of R_2	IP of D	IP of E	6000	7000	Data	trailer

Mac of R_2	Mac of E	IP of D	IP of E	6000	7000	Data	Trailer

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b) The datalink layer is responsible for moving frames from one hop (node) to the next. Transform the physical layer to a reliable link. Data link layers duties is Error control and flow control.

Error control: Data link layer adds reliability to physical layer by adding mechanism.

Flow control: Data link layer supports a flow control mechanism to avoid over whelming the receiever.