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Mid-Semester Examination : Spring 2020

Reg ID: 17201009 . Sec : A

Name : Abu Obayed Talha

Year : 3rd . Semester : 2nd

Dept. : CSE

Course title : Data Communications

Course Code : CSE 303

Date : 25.08.2020

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Answer to the question no: 4

4(a):

Here

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so

$X = 9 + 1 = 10$

$Y = 0 + 1 = 1$

Now,

First we use the shannon formula to find the upper limits.

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

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

$$= 34.59 \text{ Mbps}$$

Here,

Bandwidth B

$= 10$ MHz

SNR $= 10 \times Y$

$= 10 \times 1$

$= 10$

Level, L=

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The Shannon formula gives us 34 Mbps, the upper limit. For the better performance we choose something lower 32 Mbps ~~for~~ Then we used the Nyquist formula to find the number of signal levels,

~~32 Mbps~~

Bit Rate $= 2 \times \text{Bandwidth} \times \log_2 L$

$\Rightarrow 32\text{Mbps} = 2 \times 10\text{MHz} \times \log_2 L$

$\Rightarrow 32\text{Mbps} = 20\text{MHz} \times \log_2 L$

$\Rightarrow \log_2 L = \frac{32\text{Mbps}}{20\text{MHz}}$

$\Rightarrow \log L = 2^{\frac{32}{20}}$

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$= 3$ Ans.

And Bit Rate $= 2 \times \text{Bandwidth} \times \log \frac{L}{2}$

$= 2 \times 10\text{MHz} \log_2 3$

$= 31$ Mbps. Ans.

3b) Answer:

Below Difference between Bandwidth and Throughput:

Comparison	Bandwidth	Throughput
Basic	Data capacity travelled via channel	Pratical measure of the amount of data actually transmitted through channel
Measured in	It is measured Bits	Average rate is measured

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		depending on Bandwidth. It is measured in terms of Bits transfered per seconds bps
Connected with	Transfer of data by some means	Communication between ~~to~~ two entities
Definition	It refers to the maximum amount of the data ~~to~~ that can be passed from one point to another	It considered as the actual ~~mesu~~measurement of the data that is begin moved through the media ~~to~~ at any particular time

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Real world Example	It is the speed of tap at which water is coming out	It is the total amount of water comes out

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Yes Throughput can be ~~gre~~ greather than Bandwidth. Because throughput is the totall amount of data transfer. But Bandwidth is ~~per s~~ per second transfer data rate. So At the last of the moment ~~B~~ Through-put ~~zuru~~ value is big than Bandwidth.

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Answer to the question no: 01

1(a) Ans:

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So $X = 9 + 1$

$= 10$

and $y = 9 + 1$

$X = 10$

When x computers connected with mesh topologies, We calculated the link this formula

$$\frac{n(n-1)}{2}$$

here $n = 10$

$$= \frac{10(10-1)}{2}$$

$$= \frac{10 \times 9}{2}$$

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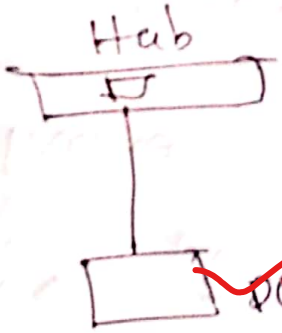
$$= \frac{90}{2}$$

$$= 45 \text{ Ans.}$$

Here have to need 45 links.

Now,

~~stat~~ ~~start~~ y = 1 computers connect -ed star topology is



If I ~~user~~ want to choose more secure network I ~~pre~~ prefer to the mesh topology. Beacuse Mesh topology has deticated path to connected ~~e~~ ~~er~~ ~~ea~~ each to each computers. Here no data ~~cupp~~

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6/

corrupts this topology.

b

1(b) Ans:

Half-duplex data flow is one ~~an~~ advantage ~~be~~ ~~wer~~ when I talk ~~m~~ my friend is listing ~~an~~ ~~d~~ it is one direction data path so no error data path is connected here. And disadvantage is When I will talk and ~~com~~ make communication my

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friend won't talk to me because its one direction data flow.

Besides Full-duplex data follow advantages is We ~~are talki~~ can talk each other at the same time. Because if data transfer method two direction at the same time. But 1000bps bandwidth so ~~We~~ I choose the half-duplex ~~as~~ data flow is the ~~bet~~ best communication to my friend.

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Answer to the question no: 2

2(b) Ans:

Data link layer work in works packet segment its handele sender Address, Reciver Address, TCP protocols, Data. So Flow control error works, here there from going data link layer to physical layer and its hand so scorized data flow to the to physical layer. And Error control handle the

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Any to currupt the ~~data~~ data. ~~The~~ Otherwise the Transport layer also performed the error control and flow control. Transport layer data ~~set~~ send to Network layer and Added a ~~her~~ new ~~hadd~~ header. And Data link layer Added a head H2 and ~~Asot~~ also added T2. So that any data has not currupt. it is to any servers.

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