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UNIVERSITY OF ASIA PACIFIC
MID EXAM - 2020 SPRING

18 10 10 09   A SECTION

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CSE

3RD YEAR   1ST SEMESTER

CSE - 303 : DATA COMMUNICATIONS

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①

ID: 18 10 10 09

@ $X = 9+1 = 10$

$Y = 0+1 = 1$

X computers connected with mesh topology.

A mesh network with n nodes has $n(n-1)/2$ links. That's why. $10(10-1)/2 = 45$ Links

So, we need 45 Links for mesh topology.

Y computers connected with star topology.

A star network with n nodes has n links. That's why 1 link.

So, we need 1 link for star topology.

Mesh topology dedicated to a point to point link in every other nodes. Where, Star topology link with a center central controller named hub.

Accordingly, mesh has no trafic problems, secured, easy fault identification but it's difficult to cost, install or re configure. On the other hand, Star is less expensive but it has to depend on the hub.

See etc case see.

Off preber a topology

Actually "it always depends on the network which we want to establish. But, I will prebor star topology. That's because it is less expensive; infact, through if any cable is not working properly, the whole network will not be abffected. Infact, we can easily add new devices without interrupting other nodes.

It's all give better performance & also easy to ~~so~~. ~~∉~~ install.

② .

$$ID = 18101809.$$

$x = (\text{last digit of id})^{\sim} \mod 6.$

$= (9)^{\sim} \mod 6 = 81 \mod 6 = 3.$

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

$= (3 + 1) \mod 6$

$= 4 \mod 6 = 4.$

So, I will be in pc 3. & my friend will be in pc 4.

Date:..................

④ ᴵD = 18 10 1009

ⓐ .x i's the last digit of ID + 1 = 9+1=10.

y " " second last " " ID+1 = 0+1 = 1.

So, we've a channel with 10 MHz
bandwidth. The signal Noise Ratio
is 10 × 10 = 100.

Appropiate bit rate = 2 × bandwith × $\log_2$(sig.)

$$= 2 × 10 × 2$$

$$= 40.$$

no. of signal
Signal level. = 66 × 10 MHz × $\log_2 L$

$$= 66 × 10$$

Firstly

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

$$= 10 × \log_2 (1 + 100)$$

$$= 10 × \log_2 101 = 66.58 \, Mbps.$$

— ①

66 Mbps = 2×10 MHZ × $\log_2 L$

ⓑ Bandwidth.

$\Rightarrow$ 66 = 20 MHZ × $\log_2 L$

$\Rightarrow$ 20 MHZ × $\log_2 L$ = 66

$\Rightarrow$ $\log_2 L = \dfrac{66\ 33}{20 MHZ}$
 10

$ = \dfrac{33}{10}$

$\Rightarrow$ L = $\log^{-1}\left(\dfrac{33}{10}\right)$

$ = 1.722 = 2$

8

⑥ Bandwith means the range of frequencies in a composite signal .or range of frequencies that a channel can pass.

Throughpoint is the measurement of how best we can actually send data thorough network.

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(b)

Half & Full duplex Advantage.

Half-duplex both way transmission possible.

For Full duplex transmit & receive simulanteously. ~~but~~ It is easy to opera

Half & Full Duplex disadvantage

For half duplex; it's not possible to send & receive data at the time

~~needs capacity~~. it is expennive & costly.