ASSIGNMENT - 1

Name : FAIAZ ABRAR ZAMAN PRONOY

Id : 22301061

Sec : 18

Course : CSE 320

Ans to the que No - 1

The communication is being carried out in Transport layer. We know transport layer is responsible for flow control. To ensure process to process delivery, it manages data flow to prevent a fast sender from causing trouble to a slow reciever. So, to avoid congestion, this layer controls flow.

In the communication above, friend 1 is ready to send 10 parcels in one shipment. But friend 2 is not ready to accept so many parcels at a time. So, it requested 5 parcels and friend 1 agreed to do that. The communication is similar to what happens in TCP protocol, lies in the transport layer which is responsible for segmentation, reassembly, add port adress and sequence number, flow and error control, multiplexing.

Ans to the que No - 2

(a) The Live streaming of a cricket match is highly sensitive due to internet delay as we will not be able to witness the event that is happening live and would miss out on the important moments in the game and even a small delay is not permissible.

(b) Trasferring of a file has medium to high sensitivity to delay. It is of high sensitivity when a certain file or a set of files are to be transferred in a quick instance or urgently. It is of medium sensitivity when a certain file or a set of files are to be

transferred not on a very urgent basis as a small delay is permissible during the process.

(c) Online Banking is extremely susceptible to delays as the entire bank as well as the other banks, their products for marketing and stocks are tied to every transaction that they make as every day, million of transactions occur and many queries run behind the system. Therefore, even an error could prevent you from purchasing your preferred ~~you from~~ product. For instance, you would like to buy an airline ticket, but your bank's server is slow. There is a possibility that someone will be able to purchase the

ticket could delay your purchase before you get the ticket.

Thus, online Banking is extremely sensitive to delay when it is compared to other applications.

Ans to the que No - 3

Cable links required for,

Mesh Topology : $\frac{n(n-1)}{2}$ cable Link [Full Duplex]

$\Rightarrow n(n-1)$ Cable Link [Half Duplex]

Star Topology : n cable Link

[Here, n is number of devices in a network]

Ans to the que No - 4

We represent data by different types of coding schemes.

Data comes in various forms. To say about specific data types, these are texts, images.

Image Standard : JPEG, GIF, Pcx, TIFF etc

Text : ASCII (American standard code for Information Interchange), UNICODE

Ans to the que No - 5

From the figure,

End devices → 1, 2, 3, 8

Transmission media → 4, 10, 11, 12

File → 6

Intermediate devices → 5, 7, 9

Protocol/Global network → 12

Ans to the que No - 6

The topology has 3 LANS. Because, there are 3 different routers. And they create 3 different networks.

If PC1 wants to send data to PC5 the 1st hop the data has to go from source is R1 or router 1.

Ans to the que No - 7

(a) Route detemination: (Network layer)

Based on the OSI layer concept, routing takes place on network layer and is based on the logical address. In network layer of TCP/IP suite, it is decided which path will data travel. This task ensures the most suitable path for data packets to travel accross a network.

(b) Connection to transmission media: (Physical layer)

In OSI, transmission media supports the physical layer. Therefore, it is considered to be as a Layer 1 component. This is a physical connection between a device and the underlying transmission media. Physical layer of TCP/IP suite is pesponsible for this task.

(c) Providing service for the end - user:

Application layer: The application layer is used by end-user software like web browsers and email clients and gives protocols that helps software to transmit and recieve information and present meaningful data to users.

(d) Creating user datagram: (Transport layer protocol): The User Datagram Protocol (UDP) is a transport layer protocol specified for use with the IP network layer protocol.

(e) Responsibility for handling frames between adjacent nodes: (Datalink layer): The data link layer is qualified for guaranteeing

that a packet of data is successfully transfereed between two adjacent nodes in the network.

(f) Transforming bits to electromagnetic signals : Physical layer : Physical layer (Ethernet, wifi etc) converts the digital bits into actual electromagnetic signals for transmission over the physical medium.

Ans to the que No - 8

End to end encryption is implemented at or above layer 3, the network layer of the OSI reference model, while link layer encryption is applied at the data link and physical layers.

The Presentation Layer (sixth layer) of the OSI model, responsible for translation, encryption, authentication, and data compression. The protocols for presentation Layer is SSL.

Physical addresses change from hop to hop, logical and port addresses remain the same from the source to destination. The physical addresses will change from hop to hop, but the logical addresses usually remain the same, because they are constant in nature and stay same for every device. For Physical Layer encryption done by protocols like PGP, S/MIME. And for Network Layer encryption done by protocols like VPN, SSL, TSL

Ans to the que No - 9

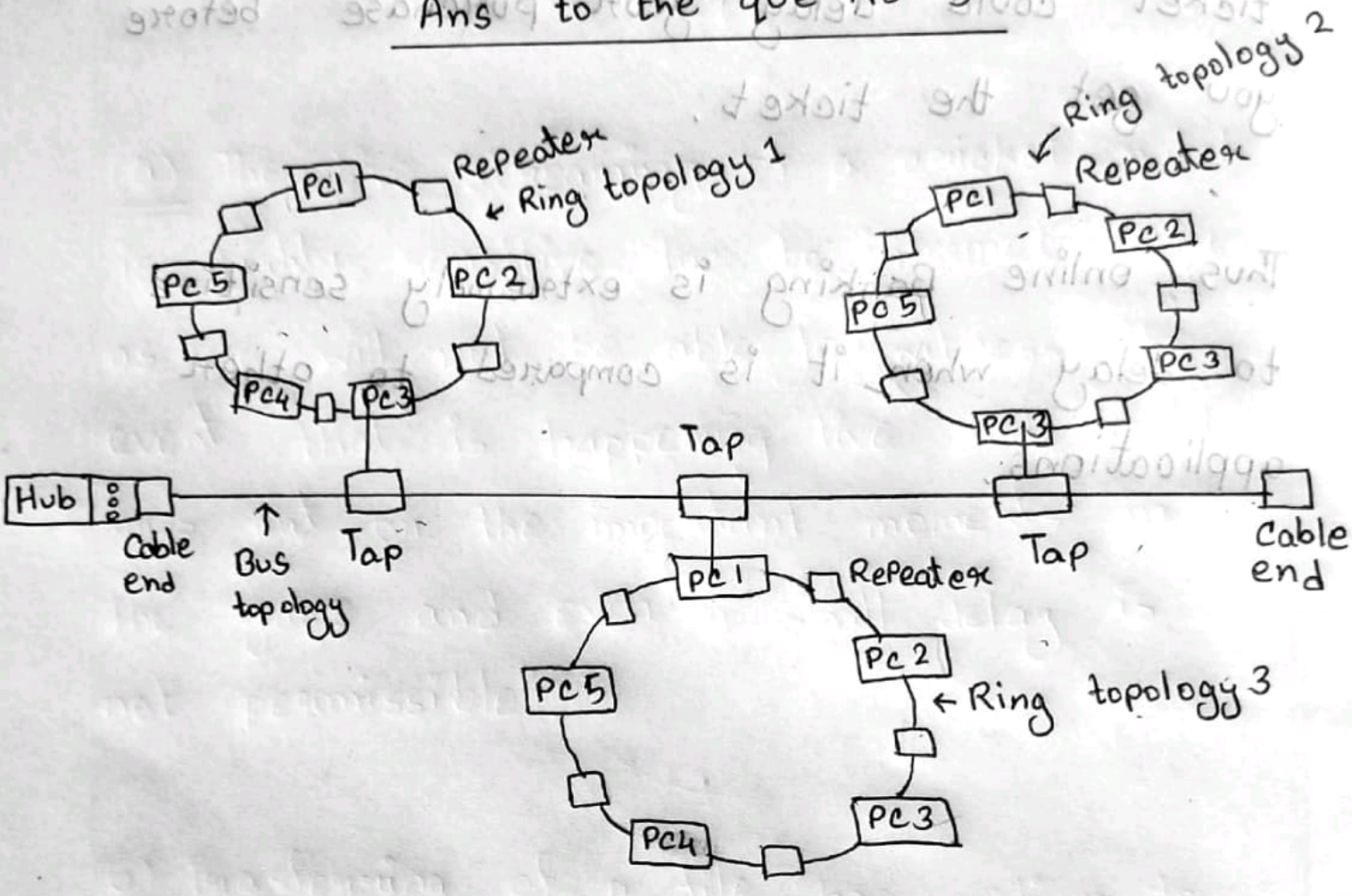

Figure: A bird topology with a bus backbone and three ring network

Ans to the que No - 19

Frame X

D.MAC	S.MAC	D.IP	S.IP	D.Port	S.Port		
A	E	20	24	80	52167	Data	Trailer

Frame Y

D.MAC	S.MAC	D.IP	S.IP	D.Port	S.Port		
G	H	24	92	49254	25	Data	Trailer