

CSE B2D

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Answer to Q.n. 1

The OSI model is used to describe the stages of transmitting data from one network to another.

The communication is being carried out in the transport layer of the OSI model.

Transport layer is the 4th layer of the OSI model. This layer conducts the delivery of data from one process to another.

The functions of transport layer are;

- i) Flow and error control
- ii) Connection control
- iii) Flow Multiplexing
- iv) Segmentation and Reassembly.
- v) Add'n port address.

Segmentation :

When the layer receives data from the upper layers, it segments the data into small parts and adds a number in order to identify the application. Then it reassembles the segmented parts by adding a number sequence.

Connection Control : Transport layer

Establishes connection between the process and then sends the data.

Flow and Error control: This layer implements flow and error control to ensure proper data transmission. When the sender process sends too many segments at a time, the receiver process buffers to store the incoming segments. Also restores the lost segments.

Answer to Qn.2

a) Facebook live:

It is much more delayed than others because it is expected to watch stream continuously and fastly.

b) Transferring file:

Next, transferring a file is less sensitive to delay as transferring file always require some time.

c) Online banking:

But, in case of online banking is less sensitive since it doesn't require a lot of time. It responds very quickly without any kind of delay. For instance, when the customer puts pin and amount of money which they want to access.

Answer to Q. - 3

For 'n' devices in a network, the number of cable links required for a mesh, ring, bus, and star topology are given below:-

Mesh topology: In case of mesh topology each and every is connected to another through a point to point connection.

For, 'n' number of devices it need $\frac{n(n-1)}{2}$ cable links.

Let, $n = 6$

$$\text{So, } \frac{n(n-1)}{2} = \frac{6(6-1)}{2} = 15 \text{ cable links}$$

Ring topology: In this topology each device is connected with two devices on either side.

Let, $n=4$

So, it will need 4 cable links for 'n' number of devices.

Bus topology: In this topology each device is connected with the backbone line through drop lines.

For, 'n' number it need $(n-1)$ cable links.

$$\text{So, } (n-1) = (8-1) = 7 \text{ cable links}$$

Star topology: In this topology each device is connected point to point through a central hub.

For n number of devices it need n cable links.

Answer to Q.n. 4

We represent data with view to using the process of numbers, text, images, audio, video, Special symbol such as ASCII.

Two kind of data types and their standards are

① Image : It's standards are JPEG, PNG, PCX, TIFF, GIF, BMP etc

② Sound : Standards are :- MP3, MP4, WAV, sound blaster.

Answer to Qn. B

Identifying the elements of communications through the given figure.

- 1 End device
- 2 End device
- 3 End device
- 4 Medium
- 5 Intermediary device
- 6 Protocol
- 7 Intermediary device
- 8 End device
- 9 Intermediary device
- 10 Medium
- 11 Medium
- 12 Medium

Answer to Q.n. 6

Given diagram, the identifiers R_1 , R_2 and R_3 are as three routers and they are connected with each other.

There are also three switches and some computers which are connected in a proper sequence. In my opinion, the topology has 3 local area networks (LAN).

Because, —

- i) R_1 router is connected to his left with a switch which is connected with three computers and the three computers [PC_0 , PC_1 , PC_2] are connected with switch 1.

ii) Router R₂ is connected with switch 0 and the two computers PC₅ and PC₆ are connected with switch 2.

iii) Router R₃ is connected with switch 2 and the switch is connected with two computers PC₃ and PC₄.

LAN: - The LAN is a network which is usually owned privately and used in a single office or building. So, the three connections are LAN.

If PC₁ wants to send data to PC₅ then the first hop that the data has to go from the source PC₁ is PC₁ to router R₁

Answer to Q.n.7

- a) Route determination → Network layer
- b) Connection to transmission media
→ Physical layer
- c) Providing services for the end user
→ Application layer.
- d) Creating user datagram → Transport layer protocol
- e) Responsibility for handling frames between adjacent nodes → Datalink layer.
- f) Converting the data from Bangla to Chinese → ~~Doesn't belong to any layer.~~
Presentation layer.

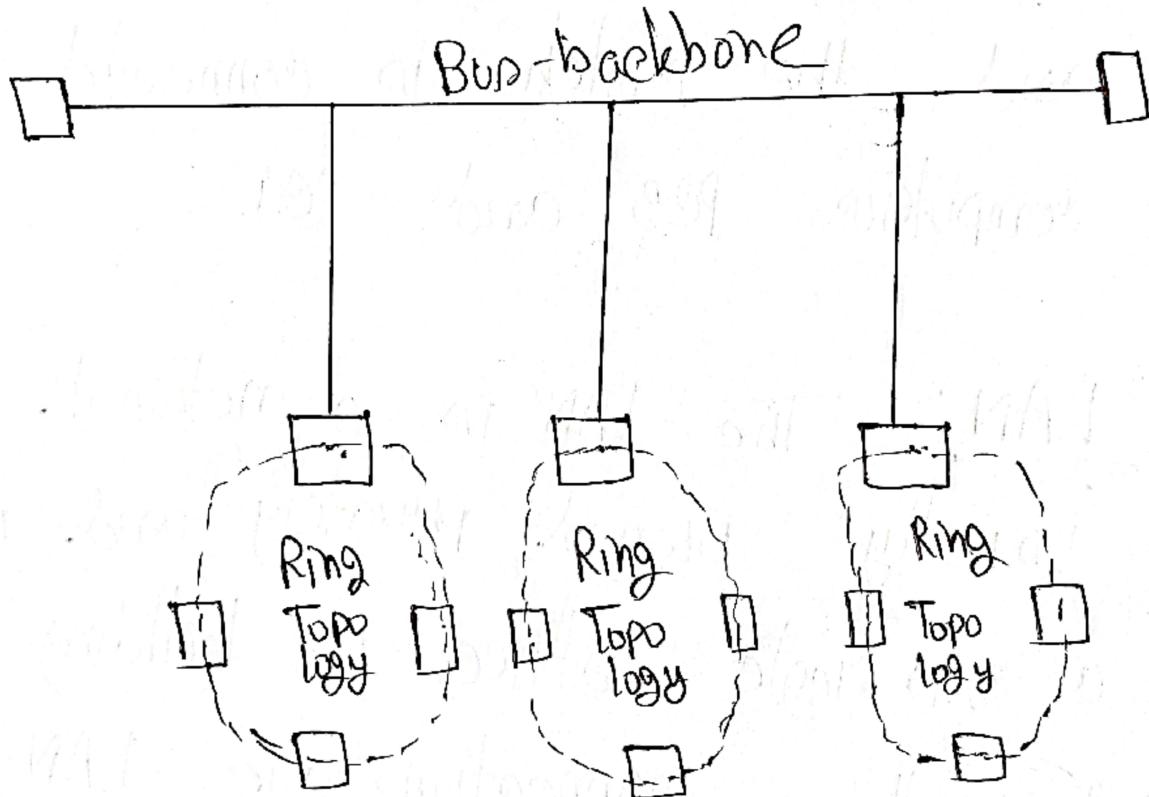
Answer to q.n. 8

The third party of the OSI model, responsible for the delivery of the packet to the final destination. And the sixth layer of the model responsible for the translation, encryption, authentication and for data compression. The sixth layer is the presentation layer. The addresser doesn't change at each hop.

Logical and port addresser doesn't change from hop to hop. For instance; IP address

Answer to Qn. 9

A topology that consists of a bus back bone and three ring networks.



Answer to Q.n. 1b

X-Frame:

D.Mac	S.Mac	D.IP	S.IP	D.Port	S.Port	Data	Trailer
A	E	20	24	80	51033		

Y-Frame

D.Mac	S.Mac	D.IP	S.IP	D.Port	S.Port	Data	Trailer
G	H	92	24	4970	25		