Assignment 1

Pulak Deb Roy

21201703

sec - 02

CSE 320

Ans to the Qw - 1

The 4 layer of TCP/IP model is -

4) Application layer

3) Transport layer

2) Internet layer

1) Link layer

① Link layer -

- Protocals: Ethernet, wifi, PPP.
- PDU: Bits and Frames.
- Special Task: Physical addressing, frame synchronization, error detection, connection, flow control.

② ~~Internet layer~~

- Functionality: This layer deals with the physical transmission of data over the network. It is responsible for transmitting

raw data packets between network nodes connected by a physical medium.

(2) Internet layer:

- Functionality: The internet layer handles the addressing and routing of data packets across different networks. It enables host-to-host communication and secure connect delivery of packets.
- Protocals: ICMP, IGMP, RARP, ARP.
- PDU: Packets.
- Special task: Logical addressing, fragmentation and reassembly of packets, routing.

(3) Transport layer:

- Functionality: The transport layer provides end-to-end communication between devices on the network.

- Protocals: TCP, UDP, SCTP
- PDU: Segments
- Special task: Establishing and terminating connections (TCP), reliable data delivery, flow control, error recovery.

④ Application layer:

- Functionality: The application layer directly interact with the end-user. It supports specific applications and provide services like - email, file transfer, web browsing.
- Protocals: HTTP, FTP, SMTP, DNS
- PDU: Data
- Specific task: Data representation, encryption, decryption.

Ans to the Qus 2

When a computer sends a frame to another computer on a bus topology Lan and if the physical destination address of the frame is connupted dwring the transmission than two things can happen.

(1) An unwanted device from the topology will necieive the frame. But since the frame is not intended fon that device, it will likly discard the frame.

(2) All the device from the topology may ignone the fname as the it was not intended fon them because the physical destination address is connupted. The frame will be lost.

There are some way that the sender can be informed about such situation such as—

① If the senden expects an nesponse from the necipient, then he can find out the ennon.

② If devices are connected by Ethennet, it can send ICMP ennon messages.

Ans to the Qus 3

The two TCP/IP protocals are —

① TCP (Transmission control Protocal)

② UDP (User Datagnam Protocal)

① TCP: Reliable protocal

Pros:

① It guarantees the delivery of data packets, It provides ennon detection.

② TCP's ennon detection mechanism helps to recover the damaged data, ensuring data integrity.

③ By flow control, we can control the nate of data transmission.

Cons:

① TCP's ability of ennon control, flow control lead to slower data transfon nate.

② It is connection-oriented, which adds additional overhead.

② UDP: Fast protocal

Pros:

① It offers faster data transfer rate.

② It has lower overhead due to his minimum protocals, which makes it more efficient.

③ UDP is suitable for realtime communication such as video streaming.

④ It is connectionless, so no setup is required.

Cons:

① It is not reliable because of no error detection. Packets may be lost on duplicated.

② It has no flow control mechanism

So, if Tom - Jenny wants to share critical, sensitive informations then TCP is best option. Othenwise, UDP is good to go.

Meanwhile, They can be use both TCP - UDP protocals also.

Ans to the Qus - 4

It is session layer of OSI model which resembles such a procedure.

The session layer is responsible for establishing managing and terminating sessions between applications. It establish session between communication device to secure reliable and synchronized communication.

In the video game seenario, the mechanism of saving the game at regular intervals acts as a checkpoint, which is the

primary ~~se~~ purpose of session layer.

Purpose: The session layer provides the mechanism to ~~se~~cause reliable communication and session control.

Example: Suppose, downloading a large torrent file, it ~~de~~ divides the file into some sessions and creates checkpoint. If at some point, the download gets corrupted then we can ~~re~~ find which session is corrupted. And start downloading again from session were last before corrupt.

Ans to the Qus 5

a. Application layer.

b. Transpont layer

c Physical layer.