UNIT IV

TRANSPORT LAYER

1. What is function of transport layer?

The protocol in the transport layer takes care in the delivery of data from one application program on one device to an application program on another device. They act as a link between the upper layer protocols and the services provided by the lower layer.

2. What are the duties of the transport layer?

The services provided by the transport layer

End-to- end delivery

Addressing

Reliable delivery

Flow control

Multiplexing

3. What is the difference between network layer delivery and the transport layer delivery?

Network layer delivery

* The network layer is responsible for the the source-to-destination delivery of packet

* The transport layer is responsible for source-to-destination delivery of the entire message.

Transport layer delivery across multiple network links.

The transport layer is responsible for source-to-destination delivery of the entire message.

4. What are the four aspects related to the reliable delivery of data?

The four aspects are, Error control, Sequence control, Loss control, Duplication control.

5. What is meant by segment?

At the sending and receiving end of the transmission, TCP divides long transmissions into smaller data units and packages each into a frame called a segment.

6. What is meant by segmentation?

When the size of the data unit received from the upper layer is too long for the network layer

datagram or data link layer frame to handle, the transport protocol divides it into smaller usable blocks. The dividing process is called segmentation.

7. What is meant by Concatenation?

The size of the data unit belonging to single sessions are so small that several can fit together into a single datagram or frame, the transport protocol combines them into a single data unit. The combining process is called concatenation.

8. What are the types of multiplexing?

The types of multiplexing are,

Upward multiplexing

Downward multiplexing

9. What are the two possible transport services?

Two basic types of transport services are,

Connection service

Connectionless services

10. The transport layer creates the connection between source and destination. What are the three events involved in the connection?

For security, the transport layer may create a connection between the two end ports. A connection is a single logical path between the source and destination that is associated with all packets in a message. Creating a connection involves three steps:

Connection establishment

Data transfer & Connection release.

11. What is meant by congestion?

Congestion in a network occurs if user sends data into the network at a rate greater than that allowed by network resources.

12. Why the congestion occurs in network?

Congestion occurs because the switches in a network have a limited buffer size to store arrived packets.

13. What is meant by quality of service?

The quality of service defines a set of attributes related to the performance of the connection. For each connection, the user can request a particular attribute each service class is associated with a set of attributes.

14. What are the two categories of QoS attributes?

The two main categories are

User Oriented

Network Oriented

15. List out the user related attributes?

User related attributes are

SCR – Sustainable Cell Rate

PCR – Peak Cell Rate

MCR- Minimum Cell Rate

CVDT – Cell Variation Delay Tolerance

16. What are the networks related attributes?

The network related attributes are,

Cell loss ratio (CLR)

Cell transfer delay (CTD)

Cell delay variation (CDV)

Cell error ratio (CER)

17. What are the rules of nonboundary-level masking?

The bytes in the IP address that corresponds to 255 in the mask will be repeated in the subnetwork address.

The bytes in the IP address that corresponds to 0 in the mask will change to 0 in the subnetwork address

For other bytes, use the bit-wise AND operator.

18. Define Gateway.

A device used to connect two separate networks that use different communication protocols.

19. What is LSP?

In link state routing, a small packet containing routing information sent by a router to all other router by a packet called link state packet.

16 Marks

1. a) Perform a comparative study between the ISO OSI model and the TCP/IP reference model.(8)

   b) Distinguish between point to point links and multi point links. Give relevant diagrams. (8)
2. List and discuss the states used in the TCP connection management finite state machine.
3. Discuss the various timers used by TCP to perform its various operations.
4. Present a tutorial on User Datagram Protocol (UDP).
5. Discuss the strategies TCP uses to avoid congestion.
6. Explain UDP & TCP.
7. Explain leaky bucket and token bucket algorithm.
8. Explain the duties of transport layer.