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CN Assignment - 1

Ques 1. What are the three criteria necessary for an effective and an efficient network?

Ans 1. The 3 criteria necessary for effective and efficient network are:-

- PERFORMANCE**: It is a measurement of various factors such as the amount of time required for message to travel from one device to another, the time it requires to get a response starting from one enquiry. It also depends on the no. of active users, transmission media, etc.
- RELIABILITY**: It is measured by the frequency of failure, time it takes to recover from failure, the network's robustness.
- Security**: The data that is sent should reach its destination safely without any third party reading, altering or destroying it in the midway.

Ques 2. What are the three fundamental characteristics to determine the effectiveness of the data communication system?

Ans The effectiveness of a data communication system depends on 3 fundamental characters:

- 1) **Delivery** → The system must deliver the data to the correct destination.
- 2) **Accuracy** → The system must deliver data accurately.
- 3) **Timeliness** → The system must deliver data in timely manner.

Ques 3. What are the criteria used to evaluate transmission medium?

Ans Criteria for evaluating the transmission media are:

- 1) Throughput
- 2) Propagation Time
- 3) Propagation speed
- 4) Wavelength

Ques 4. What are the network support layers and the user support layers?

Ans

- NETWORK SUPPORT LAYERS**
- ① Physical Layer
 - ② Data Link Layer
 - ③ Network Layer

USER SUPPORT LAYERS

- ① Session Layer
- ② Presentation Layer
- ③ Application Layer

→ The physical layer, data link layer and the network layer are the network support layers. These layers manage a physical transfer of data from one device to another.

→ Session layer, presentation and application layer are the user support layers. These layers allow communication among unrestricted software in dissimilar environments.

N/W layer deals with electrical specifications, physical connection, transport timing and reliability.

User support layer allows interoperability among unrelated software system.

Ques 5. Why we migrate from IPV4 to IPV6?

Ans. IP is short for Internet Protocol, the standard for transferring data over the internet in the form of datagrams. IPV6 is the next-gen internet protocol version which is an upgrade over the previous V4. Major difference is the bit address. Migrating doesn't mean replacing IPV4 with IPV6. It just means enabling IPV6 along with IPV4. So we migrate from IPV4 to IPV6 because of the following reasons:

- ① Makes routing efficient
- ② End to end transparency
- ③ Faster packet processing
- ④ Security
- ⑤ Quick data flows

Ques 6. Why Ethernet is said to be 1-persistent protocol?

Ans. Ethernet is said to be 1-persistent protocol because whenever adapter has a frame to send and the line is busy, it waits for the line to go idle and then transmits the frame as and when it becomes idle. Hence, Ethernet follows 1-persistent protocol.

Ethernet said to be 1-persistent protocol as it has an adapter with a frame to send transmits with probability '1' whenever a busy line goes idle.

Ques 7. Suppose we want to transmit the message 1011001001001011

Ans

$$x^8 + x^2 + x + 1$$

100 0 0 0 0 1 1 \rightarrow division

add bio

01 101100

Example

error = 11011001