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Submitted to

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(Q1) How would you describe between the different phases of a VC network? Design a supporting diagram to explain.

(Ans) Phases of a VC Network:-

(A) VC SETUP

- \* In this phase, the sending transport layer connects the network layer, specifies the receiver's address and waits for the network to setup the VC.
- \* The network layer determines the path between sender and receiver means series of link along the path.
- \* The network layer also determines the VC number for each link along the path.
- \* Network layer also add an entry in the forwarding table in each router along the path.

\* In VC setup, the network layer may also reserve the resources for example bandwidth along the path of VC.

=> Data Transfer:-

\* After VC has been established packets now can flow along the VC.

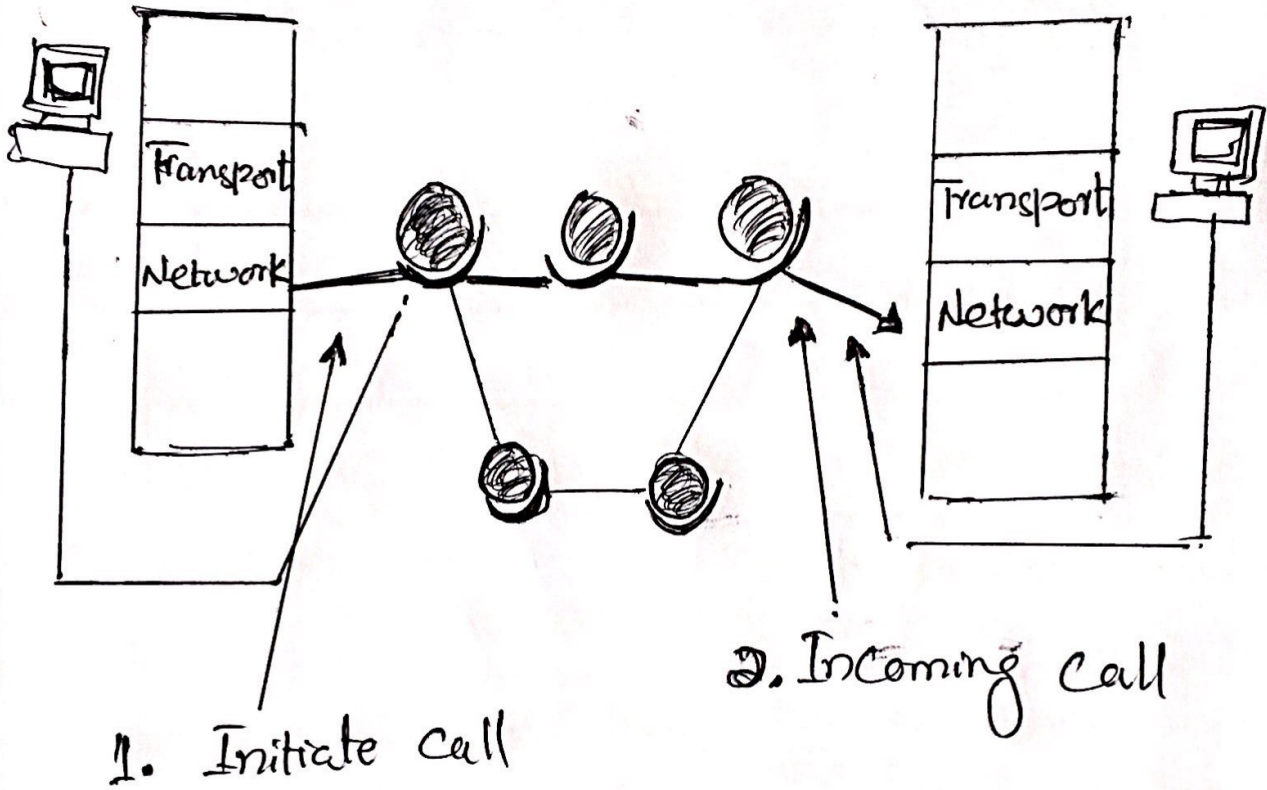
(C) VC Tear down:-

\* When the sender or receiver informs the network layer to terminate the VC, the VC ~~network~~ tear down will be initiated.

\* The network layer will then typically inform the end system on the other side of the network of the termination and update the forwarding tables in each router on the path that the VC ~~no~~ longer exists.

\* The protocols used to exchange these messages are called signaling protocols.

# \* VC Supporting Diagram:



(Q2)

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(a) Design a table to differentiate between datagram and VC?

(Ans) Difference between Datagram and VC

### Comparison between Virtual Circuit and Datagram

Data gram Network	Virtual Circuit Network
→ circuit setup not needed	→ circuit setup required.
→ Each packet contains the full source and destination address.	→ Each packet contains a short VC number.
→ Routers do not hold state information about connections	→ Each VC requires router table space per connection.
→ Each packet is routed independently	→ Route chosen when VC when setup all packet follow.
→ None, except for packet lost during the crash	→ All VCs that passed through the failed router are terminated
→ Quality of service difficult	→ Easy if enough resources can be allocated in advance for each VC
→ Congestion control difficult.	→ Easy if enough resources can be allocated in advance for each VC.

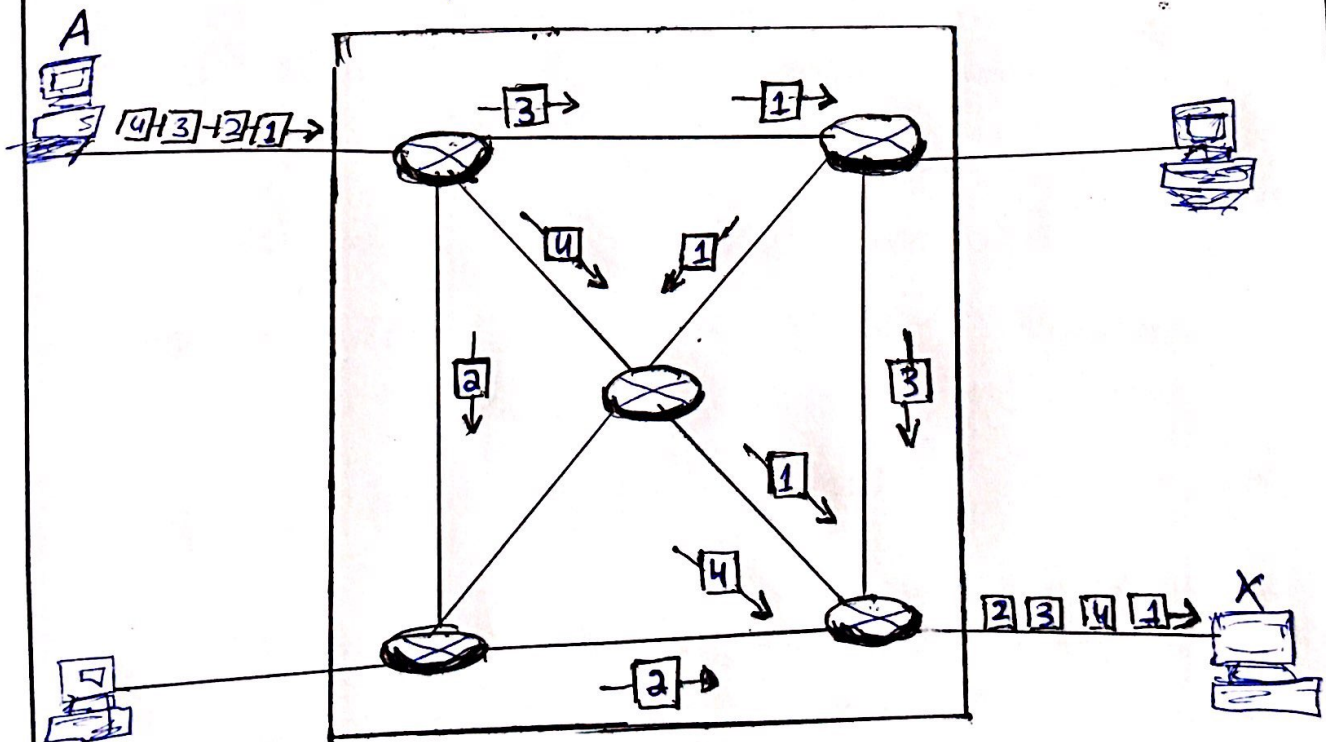
Q2  
(b) Design a diagram to elaborate an ideal datagram network?

(Ans) Datagram Network.

⇒ Each packet (called as datagram in this approach) is treated independently of all others.

⇒ All packets (or datagram) belong to the same message may travel different path to reach their destination.

⇒ Datagram switching is normally done at the network layer.



Q3

pg # 7

(a) Explain the following Briefly?

(i) Gateways:

→ A VOIP gateway is a gateway device that uses internet protocols to transmit and receive voice communication. The general term is ambiguous and can mean many different things. There are many such devices, they are quickly becoming the most common type of voice phone service in many areas.

(ii) Call Agent and Application servers.

→ The Call agent is a logic responsible for the registration and management of resources at the media gateway (MG) and is responsible for functions such as billing and routing.

## \* Application Servers:-

→ Application servers is the architectural component of a next generation VoIP or Unified Communication network that enables enhanced user features. The term is mostly commonly associated with communication service provider networks.

### (m) Latency in VoIP.

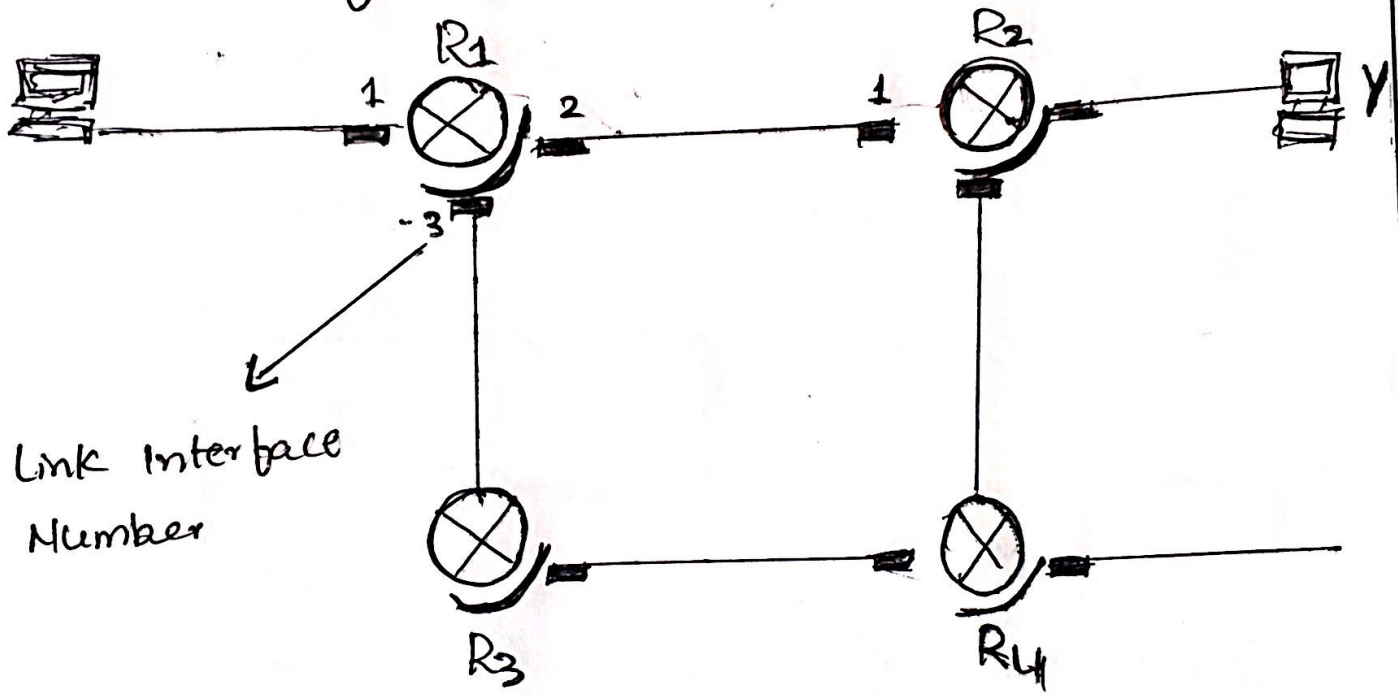
⇒ Voice-over Internet protocol (VoIP) latency is delay or lag in the in the time with voice communications between two VoIP phones.

This can cause VoIP calls to be extremely choppy and frustrating to employees and customers alike.



Q3 (b) Design a pictorial representation of VC network.

(Ans) Pictorial Representation  
of VC Network.



(Q4)

= Fill in the blanks.

- (a) Datagram provides a Connectionless communication service.
- (b) Datagram doesn't need guaranteed setup.
- (c) Circuit Setup is required in VC virtual circuit network.
- (d) Routers do not hold state information about connections in datagram.
- (e) Congestion control is easy in VC networks.
- (f) The IP Phone plugs directly into the internet.
- (g) MCU stand for Multipoint Control Unit.
- (h) A Application Server is the Architectural of a Next-Gen VOIP.
- (i) VC network are a type of connectionless networks.
- (j) Billing and Routing is Responsibility of Call agent.

- K Video Conference means to conduct conference between two or more participants.
- (L) VOIP Latency is a delay in the time with voice communication.
- (m) Packet Loss means that the data packets travelling across a network don't reach destination.
- (n) Call hijacking is an issue related with Security/Fishing.
- O Agate Keeper is a management tool for H.323 multimedia network.
- (P) Datagram Networks are a type of Connectionless networks.
- (q) An entry is added in forwarding table when new VC is established.
- (r) There are three phases in VC networks.
- (s) The protocol used to send messages are called Jitter.
- (t) VC Treaddown occur after sender and receiver inform the network layer to terminate.