

Student Roll No:

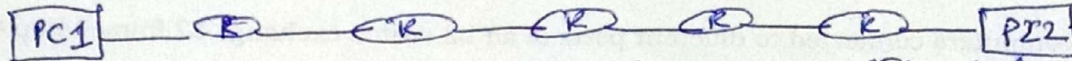
SECTION - G/D

Max. Marks: 2 Marks

Q1. How routing and forwarding processes packets inside an IP cloud?

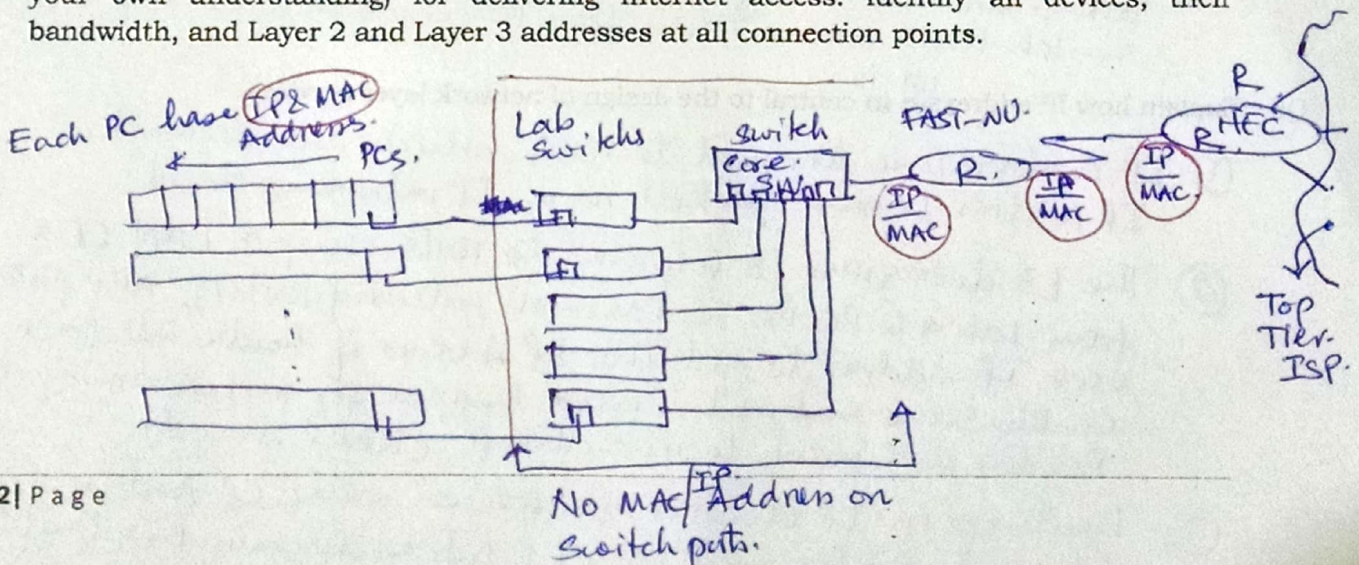
- Routing is the calculation of end-to-end route by IGP and EGP protocols. Routing algorithms create forwarding tables at each interface of routers.
- Forwarding is the process of transfer of packets from input interface of the router to the output interface base of forwarding tables lookup. (longest prefix match). Destination IP for L3 data gram header is used.

Q2. Explain the mechanism that is used to implement traceroute using a suitable diagram.



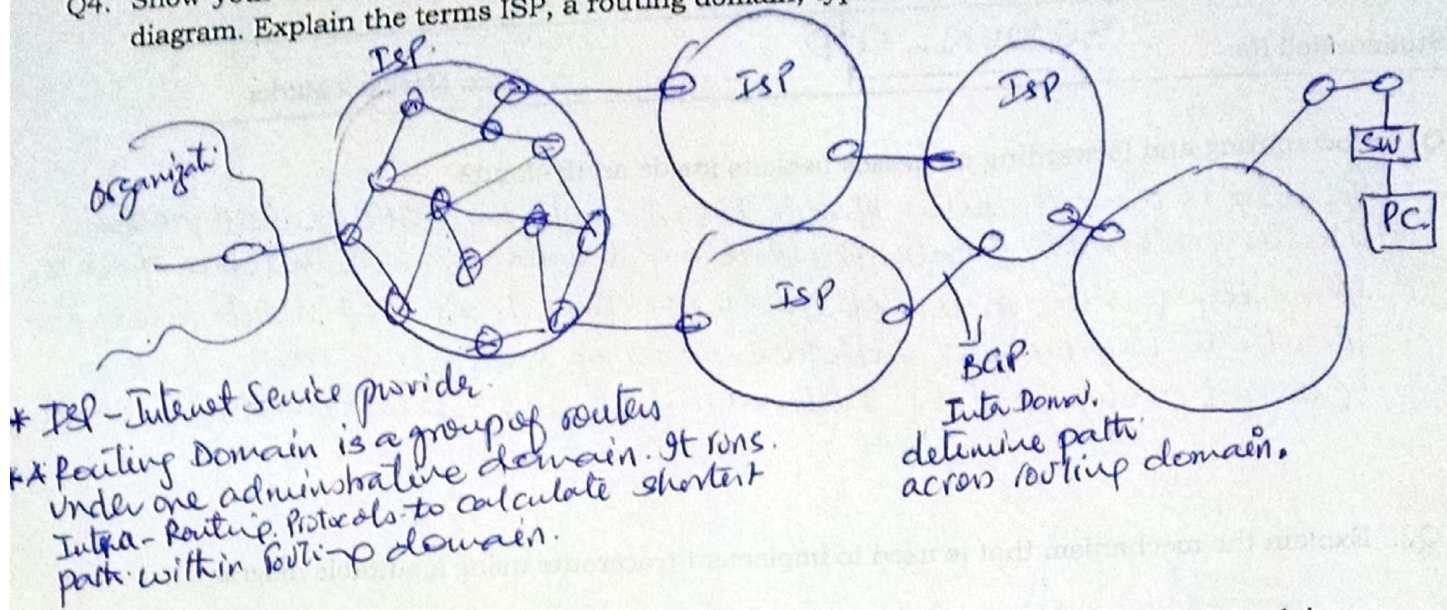
traceroute network application use TTL (Time to live). field. to get ICMP message back when router drops packet with TTL value=0. The application send first packet with TTL 1 which first router drop as TTL goes to zero after decrement. The resulting ICMP message give the IP Address of the router interface. Application now send Datagram with TTL value of 2 and so on.

Q3. Draw a labeled network diagram of the infrastructure present in FAST-NU KHI (based on your own understanding) for delivering Internet access. Identify all devices, their bandwidth, and Layer 2 and Layer 3 addresses at all connection points.

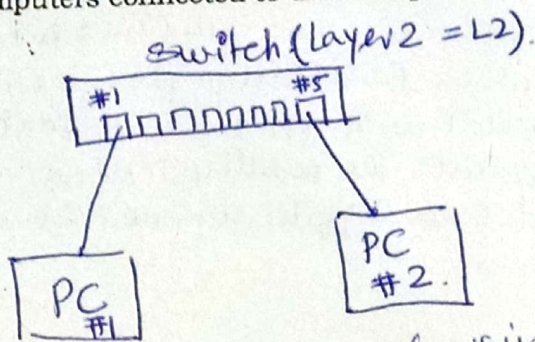




Q4. Show your understanding of the statement "Internet is a network of networks" using a diagram. Explain the terms ISP, a routing domain, type of routing and other related terms.



Q5. How computers connected to different ports of an L2 switch exchange L2 frame? Explain.



L2 frames are exchanged using MAC Addresses. Ser MAC Address & Destination MAC. Switch receive frame from port #1. lookup MAC address from the translation table to get port #1. Switch learn MAC address from PC connected to each of its ports.

Q6. Explain how IP addresses <sup>ing is</sup> central to the design of network layer services.

- ① IP Address are assigned to Hosts, which uses destination IP Address to send packet in a IP networking cloud.
- ② The L3 datagram is forwarded to router using a LAN. (e.g. from Lab #6 PC 15 to FAST-ND gateway router). ARP protocol uses IP address to get the IP Address of Router interface on the same subnet. Reverse happen for packets arriving at Router and want to reach the PC (RARP is used).
- ③ Routing in IP cloud is performed using IP Addresses. (longest prefix matching) [Intra-domain Routing].