

### PRACTICE QUIZ #3

1. What is the difference between Routing and Forwarding? 4 points

Routing means finding a suitable path for a packet from sender to destination and Forwarding is the process of sending the packet toward the destination based on routing information.

2. Why is it not a good idea to send a very small packet over the internet? 2 points

Since the header of a packet is fixed at 20 bytes, the overhead will be too much for sending a very small packet over the internet.

3. What is the basic difference between Hubs and Switches? 4 points

Hubs do not consider the destination address of a packet it just send the packet to all the computers connected to it other than the one from which it has received the packet. Switches read the destination address and forward the packet toward the destination.

4.

a)

Destination	Next Hop
A(1.1)	Interface 1
B(1.4)	Interface 1
C(2.8)	Interface 8
D(3.5)	Interface 5

b) If A wants to send a packet to D from the above diagram which route will it follow? 2 points

The packet from A will reach Switch 1 through Interface 1 and then Switch 1 will forward it to Switch 2 via Interface 8. Switch 2 will receive the packet in Interface 1 and will forward the packet to Switch 3 via interface 5. Switch 3 will receive the packet in Interface 4 and will deliver the packet to D via Interface 5.

c) Can you reduce the number of entries in Switch 2's routing table? Show the resulting table? Explain what addressing scheme feature would allow you to reduce the routing table size? 4 points

Yes, the number of entries in Switch 2's routing table can be reduced.

The resulting table would be:

Destination	Next Hop
1, any	Interface 1
3, any	Interface 5
2, any	Local

Hierarchical address scheme would allow us to reduce the routing table size.

5. List one advantage and one disadvantage of packet switching over circuit switching?  
4 points

Advantages –

Packet switching has very small set-up delay whereas Circuit switching requires longer set-up time.

In Packet switching resources are shared and used efficiently. In Circuit switching resources are dedicated and as a result used inefficiently.

Disadvantage –

Packet switching might experience congestion and consequent packet loss. Circuit switching has dedicated resource and as a result it is reliable.

6. What are Datagram and Virtual Circuit Networks? Is the Internet a Datagram or Virtual Circuit Network? 4 points

In Datagram network, there is no logical connection. Each packet is routed independently and may take different path toward destination.

In virtual circuit network, a path from source to destination is selected during connection establishment time and this path is used throughout connection lifetime.

Internet is a Datagram Network.