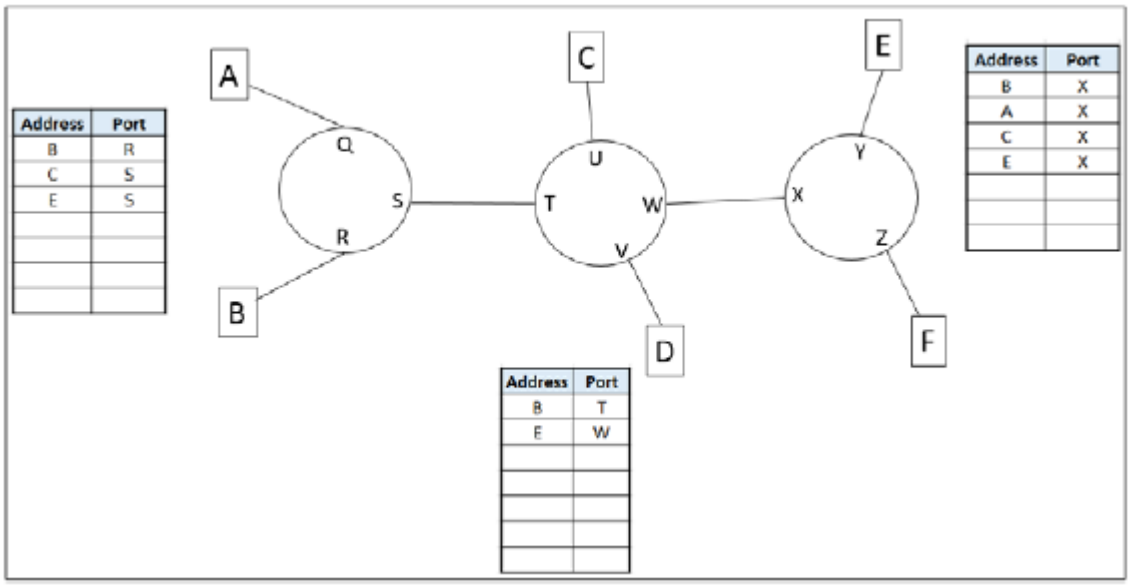
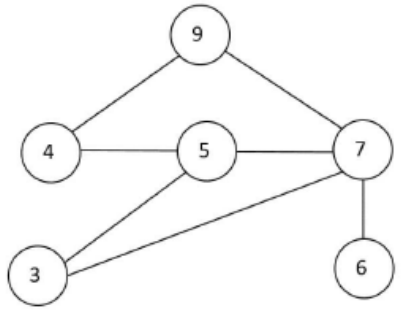
Review Exam 2

1. For the network below, indicate how the learning switches forward packets and update their forwarding tables. Indicate on which links the packet is transmitted by writing the number next to the link. Indicate a switch learns an address by filling in the forwarding table by indicating which packet caused the switch to learn the address next to the port number (in the new entry). If an existing forwarding table entry changes, correct the entry or cross it out and create a new one.

   Actions are, transmitting the following packets:
   (a) Packet 1: A to B, a packet sent from A to B
   (b) Packet 2: B to C, a packet sent from B to C
   (c) Packet 3: E to F, a packet sent from E to F



2. Given the following network where the circles are switches and the numbers are their IDs. Find the Spanning Tree Root Bridge?



3. Which hosts belong to the following subnet 72.14.177.210/15? Show your work.
   a. 73.14.177.210
   b. 72.15.177.210
   c. 72.14.178.210

4. Given the subnet containing 72.14.177.210/15? What is the subnet mask? Show your work.

5. CIDR allows routers to aggregate routes to reduce the number of forwarding table entries. Show how the following eight forwarding table entries could be aggregated to three forwarding table entries by listing the three final entries after aggregation. Note that $208_{10} = 11010000_2$.

62.210.0.0/16	B
62.211.0.0/16	B

6. Use the following forwarding table and network information for a router to answer the next questions. The networks directly connected to the router are 192.168.55.0/24 and 192.168.100.0/24 and the default route for the router is to 192.168.55.7.

Network	Next Hop
101.78.9.0/24	192.168.100.3
101.78.0.0/16	192.168.55.9
101.0.0.0/8	192.168.100.70
66.22.177.0/24	192.168.55.30

7. Where would the router send a packet with the destination IP address equal to
   (a) 101.78.4.37?
   (b) 192.168.100.13?

8. Assuming we're using class-based addressing, and consider the IPv4 address 128.12.15.16. What class does the address belong to? What is the address of the network part? What is the address of the host part

9. Below is a diagram of the IPv4 packet header format and consider a packet with the following content (in hex): **4500 0028 3e8a 4000 8006 9bd2 c0a8 0265 c73b 9b2a**

What is the value of checksum carried in this packet?