Midterm practice questions

1. Why do we need a spanning tree?
   a. To prevent loops in the network.
   b. To simplify forwarding of frames in LAN.
   c. To prevent multipaths between any 2 nodes.

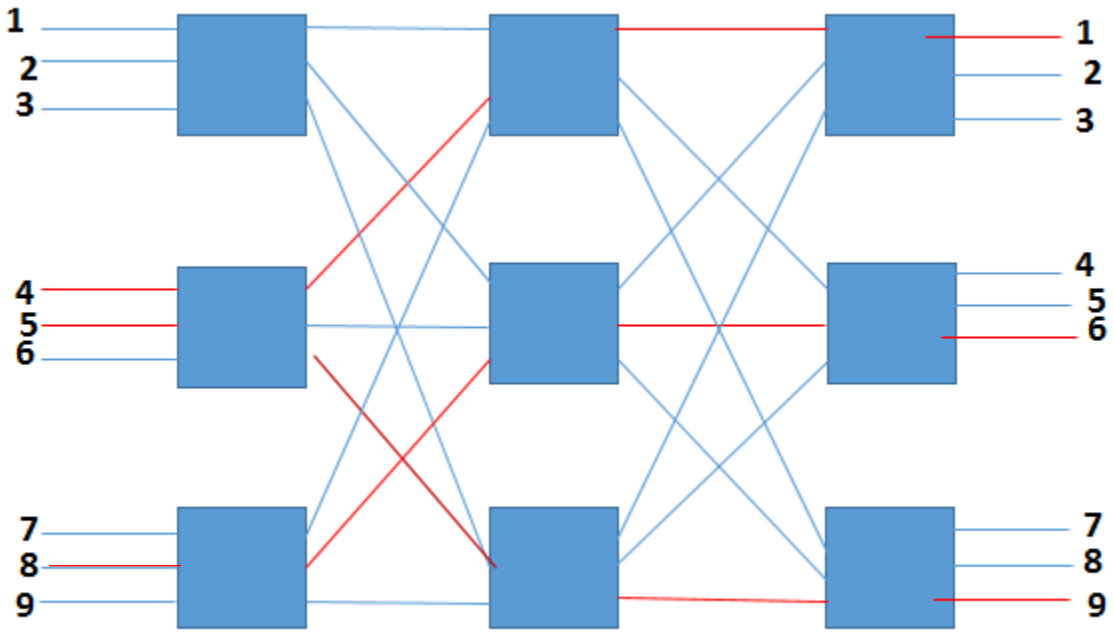
Answer: a

2. What is(are) the disadvantage(s) of the spanning tree protocol?
   a. Creates bandwidth restrictions by disabling links
   b. Limits scalability
   c. Time consumption/wasting in converging around failed links
   d. Routing overhead

Answer: a, b, c

3. The figure below shows traffic in the Clos network at time t = t1 (flow indicated by red line). If new packet arrives at time t1 from input port 6 as a source to output port 4 as a destination. Would the network be able to deliver the packet to its destination at time t1? Yes or No

Answer: No. There is an internal blocking.



T = t1

4. How many middle-stage switch modules will we need to make the above 3-stage Clos network non-blocking?
   a. 5
   b. 7
   c. 3
   d. 6

Answer: a

5. What does(do) the Cisco Fabric path provide?
   a. Layer 2 routing
   b. Equal-cost multipath (ECMP) routing
   c. MAC-in-MAC encapsulation
   d. IP-in-IP encapsulation

Answer: a, b, c

6. Suppose we want to create a new website and to run the back-end processes. The job requires 10 servers. We decide to rent 10 servers/VMs from AWS (Amazon Web Services). Then, what kind of the service AWS is offering to you?
   a. SaaS
   b. PaaS
   c. IaaS

Answer: C

7. Which of the following statements is correct?
   a. Openflow is SDN
   b. OpenFlow enables SDN in modern networks

Answer: b

8. What is the core concept of SDN?
   a. It provides an operating system for the network to give a global view and control of the network
   b. It uses a OpenFlow controller to control the enterprise network
   c. It uses a controller to control the forwarding behavior in the network

Answer: A (Choice C is one of the ways to implement SDN.)

9. In VL2, are the servers having an Application specific IP addresses (AAs) aware of any of the Location specific IP addresses (LAs)? (Yes or no)

Answer: No

10. In VL2, which device knows the mapping between AAs and LAs?
    a. ToR Top of Rack switch
    b. Directory system

c. Servers
d. Intermediate switches

Answer: b. directory system

11. For VL2, which of the following(s) is(are) true? (multiple choices)
    a. Network infrastructure in VL2 uses the Location specific IP addresses LAs.
    b. Network infrastructure in VL2 uses the Application specific IP addresses AAs.
    c. Switches using LAs runs IP-based link state routing protocol to forward packets on shortest paths.
    d. VL2 uses ECMP to perform load balancing.

Answer: a, c, d

12. VL2 uses (multiple choices)
    e. IP in IP encapsulation
    f. Mac in Mac Encapsulation
    g. clos network
    h. fat tree n/w

Answer: a, c

13. In Portland, if number of ports in switch is k= 4 then, how many Core switches will be there in the network?
    a. 4
    b. 5
    c. 3
    d. 2

Answer: a. No. of Core switches = (k/2)^2

14. In Portland, which device replies for the ARP requests sent from the servers?
    a. Fabric manager
    b. No. need to send ARP request as each host knows MAC addresses of all the other hosts.
    c. Edge switch
    d. Core switch

Answer: a

15. In Portland, which type of MAC address contained in the ARP reply?
    a. Actual MAC
    b. Pseudo MAC

Answer: b

16. Which of the following is true?
    a. Portland use MAC rewriting
    b. Portland does MAC IN MAC encapsulation
    c. Portland provides flat address space

d. It uses Fat tree topology.

Answer: a, c, d

17. What are the disadvantages of ECMP?
    a. It hashes each packet's 5 tuples to decide which path for the flow. But it can result in hash collisions.
    b. ECMP enables each edge switch to take a local decision.
    c. ECMP preserves packet order.

Answer: a, b

18. CONGA performs load balancing on flow, flowlet, or packet?
    a. Flow
    b. Flowlet
    c. Packet

Answer: b

19. How does the path-wise congestion matric is prepared by each leaf switch in CONGA?
    a. It is already pre-configured in switches and they do not need to modify it. Each switch just uses it to make forwarding decisions.
    b. Every switch in the path updates packet's "Congestion Extent (CE)" field and the destination leaf switch sends the received CE in a feedback message to the source leaf.
    c. There is no track of congestion metric at any edge switch.

Answer: b

20. What is a flowlet in CONGA?

Answer: A flowlet is bursts of packets from a flow that are separated by large enough gaps.