## Quiz 4.1: Virtual Networking

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**1.Question 1**

What are some motivations discussed for creating and deploying virtual networks?

**Allowing multiple tenants to share a data center network.**

**Easier management of logical resources.**

**Allowing network operators to deploy services independently of the hardware purchased from vendors.**

**2.Question 2**

Which of the following properties are characteristics of virtual networks (but not necessarily characteristics of SDN). (Be careful: The distinctions between SDN and virtual networks were discussed in the first lesson of this module.)

**Separates logical and physical networks.**

**Abstracts the details of the physical network.**

**Often deployed in data center networks to allow multiple tenants to share physical network infrastructure.**

**3.Question 3**

Which of the following are possible ways of creating virtual links in a virtual network?

**VLAN switching based on a VLAN tag.**

**A wide-area tunnel, whereby an IP packet is encapsulated in an MPLS tunnel by attaching an MPLS header to the packet.**

**Pairs of virtual Ethernet interfaces, where one end of the Ethernet interface pair resides in the virtual environment, and the other resides in the root namespace on the host machine.**

**A wide-area tunnel, whereby an Ethernet packet sent between two virtual machines is encapsulated in an IP packet.**

**4.Question 4**

Which of the following are true of the Mininet network emulator?

All of the hosts in the topology must run the same underlying operating system.

It is possible to set different bandwidth and latency for each link in a Mininet topology.

**5.Question 5**

What are the benefits of emulation as opposed to, say, simulation?

**An emulator allows the experimenter run real software on each of the nodes in the emulation.**

**An emulator makes it possible to "port" experiments from one machine to another.**

**6.Question 6**

Which of the following are possible in Mininet?

**Assigning custom IP addresses to each node in the topology.**

**"Shaping" a link between two nodes to a particular traffic rate.**

**Assigning IP addresses to each node in the topology using a DHCP server.**

**Running performance measurement tools (e.g., iperf, wget) between nodes.**

**7.Question 7**

Which of the following functions does FlowVisor enable?

**Allowing two controllers to control traffic on distinct VLANs.**

**Allowing one controller to control TCP traffic and one controller to control UDP traffic.**

**Allowing two different researchers to implement and deploy control mechanisms for two distinct applications.**

**8.Question 8**

Which of the following are stated applications of the Nicira Network Virtualization Platform?

**Creating more than 1024 virtual networks, as opposed to the alternative of using VLAN tags.**

**Central management of security policies.**

**Dynamic workload placement in multi-tenant data centers.**

**9.Question 9**

Select the statement that is most true about the relationship between network virtualization and SDNs.

**Software defined networking is a potential enabler for virtual networks, since separation of data and control planes makes it easier to manage a logical network topology.**

**10.Question 10**

How many switches does Mininet create for a tree of depth 3 with default fanout?

**7**

Run: sudo mn --topo tree,depth=3 Or, work it out.