**1.Question 1**

Which of the following are true of “network slicing”?



Conventional (i.e., non-SDN) networks have no concept of network virtualization or slicing.



A controller can prevent one network slice from interfering with the resources of another.



**One way to slice networks is according to “flow space”, whereby different controllers might control distinct and non-overlapping traffic flows.**

****

**Network operators can use slicing to test configurations on “shadow” networks that mirror a production network topology.**

****

**Multi-tenant datacenters are one use case for network slicing**.

**2.Question 2**

Which of the following are true about flow spaces?



Flow spaces can only be defined according to combinations of packet header fields.



Flowspace isolation separates individual virtual networks from one another but incurs some performance penalty for doing so.



Two flow spaces cannot overlap.



Two controllers that write data-plane rules for non-overlapping parts of flowspace can never cause traffic from one “slice” to enter the other slice.



**One host could send traffic that ends up in two different flow spaces**.

**3.Question 3**

Which of the following describe the control-plane checks that FlowVisor implements?



**Flowvisor prevents a controller from writing data-plane rules to a part of flowspace that it does not own.**



Flowvisor prevents each slice's controller from being the target of a denial of service attack from other slices.



Flowvisor installs traffic shaping and quality of service rules to ensure that each network slice has guaranteed resources.



**When a packet must be forwarded to a controller, Flowvisor forwards traffic to the correct controller based on which controller “owns” the flowspace corresponding to that packet.**



Flowvisor can only instantiate network slices based on the network topology, not based on other properties, such as application traffic.

**4.Question 4**

4. Which of the following are applications in a home network that network slicing could enable?



**Guest WiFi access**



Traceback of attack traffic to its source



**Smart grid applications**



Load balance of inbound traffic



**Quality of service for certain applications (e.g., video streaming)**

**5.Question 5**

From the virtual networking assignment, what is the purpose of LLDP discovery?



**It tells the controller which switch ports are connected to one another, which allows traffic to be directed along the right path**.



It computes the shortest path between each pair of end hosts.



It installs a default set of forwarding table rules.



It computes a minimum weight spanning tree.



It makes sure that the underlying topology has no loops.

**6.Question 6**

From the virtual network assignment, what would happen if the controller were not running a spanning tree protocol?



The network might become partitioned.



**The network could become overly congested.**

****

**Broadcast packets could be forwarded in a loop.**

****

**Unicast packets could be forwarded in a loop.**

****

**Some packets might be dropped before reaching their intended destination**.

**7.Question 7**

From the virtual network assignment, explain what the spanning tree module that runs at the controller does.



**It performs a centralized computation of the spanning tree protocol and updates flow table rules in switches according to the outcome of the protocol.**



It tells the switches to run a distributed spanning tree protocol.



It detects when a packet is being forwarded in a loop and disables one of the links in the loop.



It disables unicast forwarding on a subset of switches in the underlying physical topology by installing flow table rules for the appropriate switch ports.



**It disables flooding on a subset of switches in the underlying physical topology by installing flow table rules for the appropriate switch ports.**

**8.Question 8**

What are examples of multi-tenant datacenter applications?



**Amazon hosting EC2 instances for customers**

****

**Google running Gmail and search from a common facility**

****

**Two enterprises hosting data in a shared facility**.



A home network owner running a private and public WiFi network



A retailer running a large, multi-site enterprise network across its global network of sites

**9.Question 9**

What best describes the relationship between network virtualization and SDN?



**SDN makes some aspects of network virtualization easier to manage**



Network virtualization enables SDN



SDN predates network virtualization



**SDN controllers can help manage storage and data facilities, in addition to network configuration**



Network virtualization requires SDN

**10.Question 10**

Which of the following are true about NVP?



Exact matches for policies in NVP must always be performed in user space on the host.



**NVP allows tenants to configure logical datapaths on their own virtual hosts.**

****

**In NVP, most of the “intelligence” for datapath processing lies in virtual hosts, not in switches**.



NVP relies on switches with custom hardware.



NVP allows tenants to configure switches in the middle of the network for portions of flowspace that they own.