.Question 1

What are some of the reasons that it is difficult to deploy improvements to BGP?



BGP is implemented in hardware, so deploying changes to BGP requires changes on the timescale of hardware development cycles.



Only a few vendors implement BGP, and deploying changes requires convincing those vendors to change the protocol.



**Deploying changes requires coordination in standards bodies such as the IETF.**



**Changes are necessarily incremental because of the large installed base of routers that already run BGP.**



**Deplyoing changes to BGP requires coordination across potentially tens of thousands of ASes in the Internet.**

1 point

2.Question 2

Which of the following are true about the RCP?



**In Phase 1 of RCP deployment, a single AS can benefit from deploying RCP even if no other ASes deploy RCP**.



The RCP controller operates just like a route reflector would, selecting a single best route for each destination for all client routers.



In Phase 1 of RCP deployment, the RCP controller for an AS sees all routes for all destinations that an AS learns from neighboring ASes.



**In an RCP deployment, routers no longer have to compute routes.**



In Phase 1 of RCP deployment, there is no need for ASes to use BGP to exchange routes.

1 point

3.Question 3

Which of the following are true about network management with BGP, in the absence of RCP?



**BGP's interaction with the underlying routing IGP routing protocol can result in persistent forwarding loops.**

****

**Implementing network-wide policy sometimes causes the routers themeselves to have to carry state.**

****

**Each router operates and makes decisions based only on a local view of network state.**

****

BGP routing has a single point of failure.



It is not possible to perform traffic engineering with conventional BGP.

1 point

4.Question 4

Which of the following is true about the second phase of RCP deployment?



**The second phase of RCP deployment offers potential benefits such as reduced routing table size.**



The second phase of deployment requires fewer BGP sessions at the RCP controller than the first phase, thus improving scalability of the controller.



In the second phase of RCP deployment, ASes do not need to use BGP to exchange routes with one another.



**In the second phase of deployment, the RCP controller sees all routes for every destination that neighboring ASes advertise**.



The second phase of RCP deployment requires no coordination with neighboring ASes.

1 point

5.Question 5

In terms of the parlance of the 4D architecture, which protocol serves as the "dissemination plane" for the RCP?



External BGP not Answer



The Internal Gateway Protocol (IGP)



LLDP



Spanning Tree Protocol



**Internal BGP**

1 point

6.Question 6

What are some of the stated goals of simplifying the control plane in the 4D architecture.



Inherent robustness of control plane



**Simpler routers and switches**

****

**Faster innovation**

****

**Simpler management systems**



Improved security.

1 point

7.Question 7

What are some examples of how a separate decision plane can amortize system overhead?



**Maintaining a single table in memory of AS paths that are learned across all BGP sessions in the AS, and using references into that table for specific routers (and routing decisions), to save memory.**

****

**If secure BGP were deployed, verifying the signatures on the AS paths of routes received from neighbors.**

****

**Keeping track of topology information.**



Performing route computation on behalf of all the routers in the AS.



Performing inbound traffic engineering on a set of links in a coordinated fashion.

1 point

8.Question 8

What are some examples of network-wide objectives that could be achieved by the decision plane in the 4D architecture?



Provisioning a BGP peering session to a neighbor AS



**Ensuring that connectivity is not interrupted when a link or router fails**

****

**Balancing traffic load across a network**

****

**Ensuring predictable behavior for planned maintenance events**



Counting the volume of video streaming traffic across a peering link

1 point

9.Question 9

Which plane is responsible for installing state into the data plane (e.g., FIB entries, ACLs)?



Decision plane not Answer



Data plane



**Dissemination plane**



None of the above



Discovery plane

1 point

10.Question 10

Which plane is responsible for path selection and traffic engineering?



Data plane



**Decision plane**



Discovery plane



None of the above



Dissemination plane

1 point