+1/1/60+

TCP/IP Networking, 2018, Quiz 6

Use the separate answer sheet to return your answers. Do not return this sheet. We recommend that you first write your tentative answers on this sheet. In a second phase, when you are certain about your answers, you can mark them on the answer sheet.

For each question there is exactly one correct answer. If the good answer and only the good answer box is marked $\Rightarrow +1$ point. If one bad answer box is marked and no other box is marked $\Rightarrow -\frac{1}{3}$ point. If 0 or more than 1 answer box is marked $\Rightarrow 0$ point.

Question 1 Lisa downloads a web page from an https URL using HTTP/2 over TLS over a single TCP connection. After the initial TCP and TLS handshakes, the transfer of the web page starts. The page contains multiple objects. One packet is lost during the transfer of the first sent object; no other packet is lost in either direction. Can it happen that the second object is displayed on Lisa's screen before the loss is repaired ?

A Yes.

B It depends whether ECN is used.

C It depends whether the transfer is over IPv4 or IPv6.

D No, because the second and following objects must wait until the loss is repaired and the transfer of the first object is completed.

Question 2 Say what is true.

1. The goal of BGP route flap damping is to prevent oscillations due to routes being frequently withdrawn and soon re-announced.
2. The goal of a BGP confederation is to reduce the number of I-BGP peerings inside one AS.

A 2 and not 1. B Both 1 and 2. C Neither 1 nor 2. D 1 and not 2.

Question 3 Say which is true.

A Routes learnt by I-BGP are never announced to an I-BGP peer.

B Routes learnt by E-BGP are never announced to an I-BGP peer.

C Routes learnt by I-BGP are never announced to an E-BGP peer.

D Routes learnt by E-BGP are never announced to an E-BGP peer.

Question 4 Say which is true.

A I-BGP is the version of BGP used with injection (as opposed to re-distribution).

B I-BGP is BGP used inside an autonomous routing domain.

C I-BGP is Apple's version of BGP.

D I-BGP is an IGP but E-BGP is not.

Question 5 A BGP router R receives from BGP neighbours the three routes.

(1) `DESTINATION = 2001:aaa0/31; AS-PATH = A B C, NEXT-HOP = 2002:baba:b0b0:e::1`

(2) `DESTINATION = 2001:aaa0/32; AS-PATH = D, NEXT-HOP = 2002:baba:dede:f::1`

(3) `DESTINATION = 2001:aaa1/32; AS-PATH = D, NEXT-HOP = 2002:baba:dede:f::1`

Say which statement is true.

A The BGP decision process at R must select route (1) as best routes and neither route (2) nor route (3).

B The BGP decision process at R may select all three routes as best routes. If this happens, packets at this router with destination `2001:aaa0:baba::1` are forwarded towards `2002:baba:b0b0:e::1`.

C The BGP decision process at R must select routes (2) and (3) as best routes and not route (1).

D The BGP decision process at R may select all three routes as best routes. If this happens, packets at this router with destination `2001:aaa0:baba::1` are forwarded towards `2002:baba:dede:f::1`.

Question 6 A tier-1 AS has peers and customers. For such an AS, a common BGP policy is:

A Routes coming from customers are propagated to customers and to peers; routes coming from peers are propagated to peers but not to customers.

B Routes coming from customers are propagated to customers but not to peers; routes coming from peers are propagated to customers and to peers.

C Routes coming from customers are propagated to customers and to peers; routes coming from peers are propagated to customers but not to peers.

D Routes coming from customers are propagated to peers but not to customers; routes coming from peers are propagated to customers and to peers.

Question 7 Say what is true.

1. A BGP router remembers all received announcements that are accepted by the import policy.
2. When a BGP router detects that a route that it was exporting up to now becomes invalid it sends a WITHDRAW update.

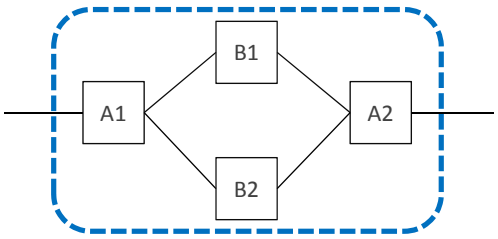
A Both 1 and 2.

B 2 and not 1.

C Neither 1 nor 2.

D 1 and not 2.

Question 8 An AS is made of boundary routers (A1 and A2) and backbone routers (B1 and B2) as shown in the figure. Boundary routers connect to external networks. Backbone routers are not connected to external networks.



All routers run OSPF. All boundary routers run BGP. OSPF is redistributed into BGP but BGP is not redistributed into OSPF. All BGP routes are injected into the forwarding table at every router that runs BGP. In order to make sure all transit packets are properly routed through this AS, Bart envisions activating the following functions.

1. backbone routers B1 and B2 also run BGP.
2. all routers support recursive table lookup in their forwarding table.

A The configuration works if 1 alone is activated; 2 may be activated but is not necessary.

B The configuration works if 2 alone is activated; 1 may be activated but is not necessary.

C The configuration works if both functions are activated, but does not work if only one of the two functions is activated.

D The configuration does not work even if both 1 and 2 are activated because some function is missing for transiting packets through the backbone.

Question 9 Recursive table lookup in the forwarding table of a router R occurs whenever...

A the next-hop is not onlink with R.

B the next-hop is an IPv4 address and the final destination is IPv6.

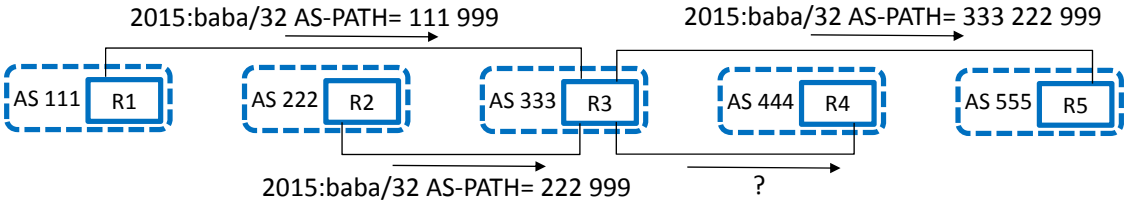
C there are several next-hops.

D R is IPv4 only and the next-hop is IPv6.

Question 10 Plain black lines are BGP peerings. Say which is true about the BGP announcements that $R3$ may choose to send to $R4$:

$A1$: 2015:baba/32 AS-PATH=333 111 999;

$A2$: 2015:baba/32 AS-PATH=333 222 999.



A $R3$ may send $A1$ but should not send $A2$.

B $R3$ may send $A1$ or $A2$ or both.

C $R3$ should either send both $A1$ and $A2$ or send none.

D $R3$ may send $A2$ but should not send $A1$.

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This is the answer sheet: all answers are to be marked on this page to be taken into account. Do not return the other sheets.

To mark a box, please make it completely dark (a cross is not sufficient):

Do:

Question 1: [A] [■] [C] [D]

Don't:

Question 1: [A] [⊠] [C] [D]

0	0	0	0	0	0
1	1	1	1	1	1
2	2	2	2	2	2
3	3	3	3	3	3
4	4	4	4	4	4
5	5	5	5	5	5
6	6	6	6	6	6
7	7	7	7	7	7
8	8	8	8	8	8
9	9	9	9	9	9

⟵ Please encode your SCIPER number here and write your full name in the box below. ↓

Name, First Name:

.....

Question 1: [A] [B] [C] [D]

Question 2: [A] [B] [C] [D]

Question 3: [A] [B] [C] [D]

Question 4: [A] [B] [C] [D]

Question 5: [A] [B] [C] [D]

Question 6: [A] [B] [C] [D]

Question 7: [A] [B] [C] [D]

Question 8: [A] [B] [C] [D]

Question 9: [A] [B] [C] [D]

Question 10: [A] [B] [C] [D]