TCP/IP Networking 2015 Test 4

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Grading:
For each question there is exactly one correct answer.
If the good answer and only the good answer box is crossed $\Rightarrow$ +1 point. If one bad answer box is crossed and no other box is crossed $\Rightarrow -\frac{1}{3}$ point. If 0 or more than 1 answer box is crossed $\Rightarrow$ 0 point.
$\longleftarrow$ Please encode your SCIPER number here and write your full name in the box below. $\downarrow$

Name, First Name:

....

Question 1   Router R has a flow table and a routing table as shown below. R receives a packet on eth0, with destination address 128.178.151.1. On which interface does R transmit the packet ?

Flow Table

Flow spec	Action	Prio
input eth0, dest IP addr 128.178/12	output eth3	9

Routing Table

Destination	Next-Hop	Interface
128.178/16	128.178.15.1	eth1
128/8	128.178.15.9	eth2

☐ eth0   ☐ eth1
☐ eth2   ■ eth3

Question 2   The routers A, B and C use distance vector routing i.e. distributed Bellman-Ford. The cost of the links $A \rightarrow B$ and $A \rightarrow C$ are 1. The routing table at A contains the entry "destination = n, cost = 4, next hop = B". A receives from B the routing update "Cost to n is 5". What is the cost to n at A after processing this routing update ?

☐ 4   ☐ 5
■ 6   ☐ 3

Question 3   In a fully connected network, which of the following algorithms always converge to the correct distance regardless of initial conditions ?

■ both centralized and distributed Bellman-Ford.

☐ distributed Bellman-Ford but not centralized Bellman-Ford.

☐ centralized Bellman-Ford but not distributed Bellman-Ford.

☐ neither centralized nor distributed Bellman-Ford.

Question 4   Bart claims that he can recognize whether an IP packet is multicast simply by looking at the IP destination address. Is he right ?

☐ No.   ☐ No with IPv4 but yes with IPv6.
■ Yes.   ☐ Yes with IPv4 but no with IPv6.

Question 5   The routers A, B and C use distance vector routing i.e. distributed Bellman-Ford. The cost of the links $A \rightarrow B$ and $A \rightarrow C$ are 1. The routing table at A contains the entry "destination = n, cost = 4, next hop = B". A receives from C the routing update "Cost to n is 2". What is the cost to n at A after processing this routing update ?

☐ 4   ☐ 5
☐ 6   ■ 3

Question 6   Route poisoning means that...

☐ a source that detects that destination n is unreachable sends a source-routed packet to destination n in order to inform all routers along the route that n is unreachable.

☐ a router that receives a malformed routing sends it back to its originator.

■ a router that detects that destination n is unreachable immediately sends the update "Cost to n is infinite" to all neighbours.

☐ a router A that has B as next-hop to destination n does not send to B updates about destination n.

Question 7   In order to send packets via IP multicast to a group that corresponds to multicast address m, a host A should ...

■ simply send IP packets with destination IP address equal to m.

☐ first broadcast an IGMP/MLD message inside A's LAN, and only then send IP packets to IP address m.

☐ first send an IGMP/MLD message to A's gateway, and only then send IP packets to IP address m.

☐ send an IGMP/MLD message to all destinations of the multicast group.

Question 8   Count to infinity may occur ...

☐ in a non fully connected network, with centralized Bellman-Ford but not with distributed Bellman-Ford.

■ in a non fully connected network, both with centralized and distributed Bellman-Ford.

☐ in a non fully connected network, with distributed Bellman-Ford but not with centralized Bellman-Ford.

☐ with distributed Bellman-Ford, regardless of whether the network is fully connected or not.

Question 9   With link state routing ...

■ all routers have a map of the network and its links.

☐ all routers keep a record of the distances to destination as seen by all their neighbours.

☐ all routers keep a record of which among their neighbouring links is the best towards the destination.

☐ the computed distance to a destination depends on the state of network links.

Question 10   Source routing means that ...

■ the path is written in the packet header at the source.

☐ the routing protocol involves not only routers but also hosts (which are packet sources).

☐ the selection of a source for multicast IP is based on reverse path routing.

☐ the routing decision at intermediate systems depends not only on the destination but also on the source of the packet.