COM-208: Computer Networks - Sample Quiz Solutions

Name:

1. Network-layer processing happens in:

    (a) end-systems only.
    (b) IP routers only.
    (c) both end-systems and IP routers. *(Correct)*

2. The forwarding process and the routing process are related in the following way:

    (a) Forwarding populates the forwarding tables of IP routers, which are used by routing.
    (b) Routing populates the forwarding tables of IP routers, which are used by forwarding. *(Correct)*
    (c) They are the same thing.

3. An Internet IP router can forward packets destined to:

    (a) any public IP address. *(Correct)*
    (b) only IP addresses from a local IP subnet (an IP subnet attached to the router).
    (c) only IP addresses that belong to an end-system directly connected to the router.

4. If the Internet network layer used network-layer connections (virtual circuits),

    (a) it could offer more than a best-effort service. *(Correct)*
    (b) the forwarding tables of IP routers would be smaller.
    (c) both of the above.

5. IP routers group IP addresses in IP prefixes, because it reduces:

    (a) the amount of traffic they have to process.
    (b) the size of their packet buffers (queues that store packets).
    (c) the size of their forwarding table. *(Correct)*

6. A NAT (Network Address Translation) gateway:

    (a) blocks all TCP connections initiated in the local (private) subnet.
    (b) keeps state for all TCP connections between the local subnet and the outside world. *(Correct)*
    (c) keeps state for all TCP connections between end-systems in the local subnet.

7. The least-cost path from IP router x to IP router y is:

    (a) shorter when it is computed through link-state routing.
    (b) shorter when it is computed through distance-vector routing.
    (c) independent from what routing algorithm the routers use. *(Correct)*

8. Which routing algorithm produces more traffic (more routing messages exchanged between IP routers)?

    (a) Link-state routing. *(Correct)*
    (b) Distance-vector routing.
    (c) All routing algorithms produce the same amount of traffic.

9. A "poisoned reverse" helps avoid routing loops by ensuring the following about IP routers x, y, and z:

    (a) if x's link to y breaks, x does not try to send packets to y.
    (b) if x routes to z through y, y does not route to z through x. *(Correct)*
    (c) if x routes to z through y, y routes to z through x.

10. All Internet IP routers must run:

    (a) the same intra-AS routing algorithm, so that they can all reach each other.
    (b) the same inter-AS routing algorithm, so that they can all reach all IP subnets. *(Correct)*
    (c) different inter-AS routing algorithms, so that IP routers in different ASes (Autonomous Systems) cannot reach each other.