

## COM-208: Computer Networks - Sample Quiz

Name:

1. Network-layer processing happens in:
  - (a) end-systems only.
  - (b) IP routers only.
  - (c) both end-systems and IP routers.
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.
  - (c) They are the same thing.
3. An Internet IP router can forward packets destined to:
  - (a) any public IP address.
  - (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.
  - (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.
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.
  - (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.
8. Which routing algorithm produces more traffic (more routing messages exchanged between IP routers)?
  - (a) Link-state routing.
  - (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.
  - (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.
  - (c) different inter-AS routing algorithms, so that IP routers in different ASes (Autonomous Systems) cannot reach each other.