IPv6 (Slide set #11):
Informal Quiz
IPv6

T  F
☐  ☐ IPv6 is merely IPv4 with larger (128-bit) addresses
☐  ☐ NATs are similar to ALGs in that they restrict end-to-end addressing transparency (i.e. we lose global addressibility)
☐  ☐ NAT deployment is likely to intensify with IPv4 address space shortage
☐  ☐ Prior to CIDR, Class C address blocks were the the most popular in terms of being allocated.
☐  ☐ IPv6 was originally designed to support at least $10^{12}$ end systems.
☐  ☐ The colon-hex notation is less convenient than dotted-decimal notation to represent IPv6 addresses
☐  ☐ The header length field is retained in IPv6
☐  ☐ The protocol type field in IPv6 is replaced by the “next header” field.
☐  ☐ Flow label is a field both in IPv4 and IPv6 headers
☐  ☐ IPv6 uses the idea of extension headers to implement options (the base header is fixed length).
☐  ☐ IPv6 attempts to reduce header processing time by reducing and redefining header fields.
☐  ☐ IPv6 views fragmentation as an optional (i.e. infrequently used) feature, and therefore relegates it to the extension headers.
Aggregatable global unicast addresses in IPv6 allow better routing scalability because aggregation is based on topology defined by providers.

IPv4 allows automated re-numbering of IP addresses throughout an enterprise.

Link local addresses, multicast and neighbor discovery are key components in IPv6 which allow plug-and-play.

Link local addresses is a stateless auto-configuration method while DHCP is a stateful auto-configuration method.

Flow classification cannot be done when the authentication header is used.

The scoping of multicast transmission is not a part of the IPv6 address.

Neighbor discovery captures IGMP functionality.

Neighbor discovery subsumes ARP and router discovery functionality.

The H ratio is usually 0.3 when networks expand their address spaces.

The 128 bit address space in IPv6 simplifies auto-configuration, network renumbering and routing.

The purported security and QoS advantages of IPv6 have been reasonably engineered in the context of IPv4 itself.
The growth of wireless IP devices and peer-to-peer applications appear to be principal drivers for IPv6 today.

Neighbor discovery generalizes the ARP functionality, and allows multiple default routers and multiple prefixes per interface.

IPv6’s prefix lifetime and multiple addresses per interface features simplify renumbering of an AS, as it transitions from one provider to another.

The 6-over-4 transition scheme views IPv4 as a link (i.e. subnet) of IPv6, and allows automated tunneling.

The 6-to-4 transition scheme views IPv4 as a link (i.e. subnet) of IPv6, and allows automated tunneling.

The 6-to-4 transition scheme derives the IPv6 address directly from the IPv4 address by mapping it to the site prefix field of the IPv6 address.