Lecture 1 - Layers of the Internet Quiz

1. Which of the following is a primary challenge related to the "Federation" of the Internet?

A) The speed of light limits data transfer
B) There is no single operator, requiring cooperation among rivals
C) Hardware components fail frequently
D) Wireless signals are prone to interference

ANS:

2. The Internet is "Best-Effort" at Layer 3. What does this mean?

A) The network guarantees 100% delivery of all packets
B) The network will tell you immediately if a packet fails to arrive
C) The network tries its best to deliver packets but makes no guarantees
D) The network prioritizes important emails over video streaming

ANS:

3. Which organization is responsible for standardizing and publishing Internet protocols in RFC documents?

A) IEEE (Institute of Electrical and Electronics Engineers)
B) ISO (International Organization for Standardization)
C) IETF (Internet Engineering Task Force)
D) W3C (World Wide Web Consortium)

ANS:

4. In the context of protocols, what does "Syntax" refer to?

A) The actions taken in response to a message
B) The format of messages (what the 1s and 0s mean)
C) The speed at which messages are sent
D) The physical medium used to send messages

ANS:

5. Layer 1 (Physical Layer) is responsible for:

A) Moving bits across space using physical technology
B) Connecting local networks together
C) Ensuring reliable delivery of data
D) Breaking large data into smaller packets

ANS:

6. What is the main function of Layer 4 (Transport Layer)?

A) To convert digital signals into analog waves
B) To build reliable delivery (e.g., re-sending lost packets) on top of Layer 3

C) To physically connect two machines with a wire
D) To route packets between different towns

ANS:

7. Why is Abstraction (or Modularity) considered powerful in Internet design?

A) It allows all layers to be combined into one fast software block
B) It ensures that a change in Layer 2 protocols does not affect other layers
C) It guarantees that hardware never fails
D) It eliminates the need for physical wires

ANS:

8. In the failure analysis example, if a system has 50 components each working 99% of the time, what is the approximate chance that at least one fails?

A) 1%
B) 10%
C) 39.5%
D) 99%

ANS:

9. What distinguishes a Host from a Switch or Router?

A) Hosts forward packets; Switches generate data
B) Hosts are end machines (like laptops); Switches forward packets toward destinations
C) Hosts operate at Layer 1; Switches operate at Layer 4
D) Hosts are only for receiving; Switches are only for sending

ANS:

10. Which of the following is true about Layer 3 (The IP Layer)?

A) It strictly uses only wired links
B) It connects many local networks to form a global network
C) It handles the physical voltage on the wires
D) It guarantees the order of packet arrival

ANS:

11. What term is used to describe a stream of packets exchanged between two endpoints at Layer 4?

A) Flow (or Connection)
B) Circuit
C) Voltage
D) Spectrum

ANS:

12. Which of the following is a characteristic of Layer 3 (Best-Effort service)?

A) Packets are guaranteed to arrive in order
B) The network notifies you if a packet is lost

C) Packets are limited in size and could get lost, reordered, or corrupted
D) The network uses encryption to protect all packets

ANS: