

Telecommunications Fundamentals

Telecommunications · Practice Test · 18 Questions

1. What is the primary function of the OSI model's Transport Layer?

- A) To define physical transmission media.
- B) To provide end-to-end communication and reliability between hosts.
- C) To manage network access and physical addressing.
- D) To interpret and format data for applications.

2. Which type of network topology is most resilient to single-point failures?

- A) Bus
- B) Star
- C) Ring
- D) Mesh

3. What does the acronym 'VoIP' stand for in telecommunications?

- A) Virtual Optical Internet Protocol
- B) Voice Over Internet Protocol
- C) Vocal Online Interconnection Protocol
- D) Video Over Internet Protocol

4. Which modulation technique is most commonly used for AM radio broadcasting?

- A) Frequency Modulation (FM)
- B) Phase Modulation (PM)
- C) Amplitude Modulation (AM)
- D) Quadrature Amplitude Modulation (QAM)

5. What is the standard protocol for sending email from a client to a mail server?

- A) HTTP
- B) FTP
- C) SMTP
- D) POP3

6. The 'Ethernet' standard primarily operates at which layer of the OSI model?

- A) Network Layer
- B) Data Link Layer
- C) Transport Layer
- D) Application Layer

7. What is the primary characteristic of a 'leased line' service?

- A) It is a shared network connection.
- B) It provides a dedicated, fixed-bandwidth connection between two points.
- C) It is typically used for public internet access.
- D) Its bandwidth can vary significantly based on network traffic.

8. Which ITU-T standard defines the basic interface for digital subscriber lines (DSL)?

- A) G.992.1 (ADSL)
- B) V.34
- C) ISDN
- D) SONET

9. In cellular telecommunications, what does the term 'handoff' refer to?

- A) A user switching between different mobile applications.
- B) A mobile device connecting to a Wi-Fi network.
- C) A seamless transfer of a call or data session from one cell tower to another.
- D) The process of authenticating a new user on the network.

10. What is the fundamental principle behind fiber optic communication?

- A) Transmission of radio waves through glass fibers.
- B) Transmission of electrical signals along a conductive core.
- C) Transmission of light pulses through thin strands of glass or plastic.
- D) Transmission of sound waves modulated onto carrier signals.

11. Which protocol is responsible for assigning IP addresses to devices on a network?

- A) DNS
- B) HTTP
- C) DHCP
- D) ARP

12. What does the acronym 'Wi-Fi' technically stand for?

- A) Wireless Fidelity
- B) Wireless Fiber
- C) Wired Fidelity
- D) Wireless Frequency

13. The concept of 'packet switching' in data networks means that data is broken down into small units called:

- A) Frames
- B) Segments
- C) Datagrams
- D) Packets

14. Which historical telecommunication technology allowed for simultaneous voice and data transmission over telephone lines before broadband?

- A) Dial-up modem
- B) ISDN (Integrated Services Digital Network)
- C) ADSL
- D) POTS (Plain Old Telephone Service)

15. What is the primary purpose of a Domain Name System (DNS) server?

- A) To encrypt internet traffic.
- B) To assign IP addresses to devices.
- C) To translate human-readable domain names into IP addresses.
- D) To route data packets across the internet.

16. Which of the following is a common type of multiplexing used to combine multiple signals over a single communication channel, where each signal is assigned a different time slot?

- A) Frequency Division Multiplexing (FDM)
- B) Wavelength Division Multiplexing (WDM)
- C) Code Division Multiplexing (CDM)
- D) Time Division Multiplexing (TDM)

17. What is the fundamental difference between synchronous and asynchronous transmission?

- A) Synchronous requires a clock signal for every bit; asynchronous uses start/stop bits.
- B) Asynchronous is faster than synchronous.
- C) Synchronous is used for analog signals; asynchronous for digital.
- D) Asynchronous requires a dedicated circuit; synchronous uses packet switching.

18. Which telecommunications standard defines the architecture for high-speed optical transport networks?

- A) Ethernet
- B) Wi-Fi
- C) SONET/SDH
- D) Bluetooth