Telecommunications Fundamentals

Telecommunications · Answer Key · 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