

Unit 1: Introduction to Computer Networks

1. What is the primary purpose of computer networks?
 - a) Increase processing speed
 - b) Enable resource sharing and communication**
 - c) Replace operating systems
 - d) Reduce hardware costs
2. Which network architecture uses dedicated servers?
 - a) Peer-to-peer
 - b) Client-server**
 - c) Ad-hoc
 - d) Mesh
3. The OSI model has how many layers?
 - a) 5
 - b) 7**
 - c) 4
 - d) 9
4. Which layer provides end-to-end communication in TCP/IP?
 - a) Network
 - b) Transport**
 - c) Application
 - d) Data Link
5. What is the key advantage of TCP/IP over OSI?
 - a) Practical implementation**
 - b) More layers
 - c) Strict standardization
 - d) Complex error handling
6. Which network covers the largest geographical area?
 - a) LAN
 - b) MAN
 - c) WAN**
 - d) PAN
7. A protocol in networking refers to:
 - a) A hardware device
 - b) Rules for communication**
 - c) A cable type
 - d) An OS
8. Which OSI layer handles MAC addressing?
 - a) Network
 - b) Data Link**
 - c) Physical
 - d) Transport
9. The main critique of the OSI model is:
 - a) Overly complex**
 - b) Few layers
 - c) No security
 - d) No TCP/IP support

10. Which TCP/IP layer matches OSI's Network layer?

- a) **Internet**
- b) Transport
- c) Application
- d) Host-to-host

11. PAN stands for:

- a) Public Area Network
- b) **Personal Area Network**
- c) Protocol Access Network
- d) Packet Address Network

12. Standard for wired Ethernet:

- a) IEEE 802.11
- b) **IEEE 802.3**
- c) IEEE 802.15
- d) IEEE 802.16

13. Session layer in OSI manages:

- a) Error detection
- b) **Dialogues**
- c) Encryption
- d) Routing

14. Which is NOT a network topology?

- a) Star
- b) Bus
- c) **Protocol**
- d) Ring

15. The Internet primarily uses:

- a) OSI model
- b) **TCP/IP model**
- c) Hybrid model
- d) ATM model

16. Which is a connection-oriented protocol?

- a) UDP
- b) **TCP**
- c) IP
- d) HTTP

17. What does HTTP stand for?

- a) Hyper Text Transfer Protocol
- b) **Hypertext Transfer Protocol**
- c) High Transfer Text Protocol
- d) Hybrid Transfer Text Protocol

18. Standard for Wi-Fi:

- a) **IEEE 802.11**
- b) IEEE 802.3
- c) IEEE 802.15
- d) IEEE 802.16

19. Which device operates at the Network layer?
- a) Hub
 - b) Switch
 - c) Router**
 - d) Repeater
20. The OSI layer closest to the user:
- a) Physical
 - b) Transport
 - c) Application**
 - d) Session
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Unit 2: Physical Layer

1. The physical layer transmits:
 - a) Packets
 - b) Bits**
 - c) Frames
 - d) Segments
2. Analog signals are:
 - a) Continuous**
 - b) Discrete
 - c) Digital
 - d) Packaged
3. Attenuation refers to:
 - a) Signal strength loss**
 - b) Data corruption
 - c) Protocol error
 - d) Bandwidth increase
4. Highest bandwidth medium:
 - a) Fiber optic**
 - b) Twisted pair
 - c) Coaxial
 - d) Radio wave
5. Multiplexing combines:
 - a) Multiple signals**
 - b) Protocols
 - c) Networks
 - d) Error checks
6. Circuit switching establishes:
 - a) Dedicated path**
 - b) Packet route
 - c) Virtual circuit
 - d) Broadcast domain
7. DSL uses:
 - a) Telephone lines**
 - b) Fiber optics

- c) Satellite
 - d) Coaxial
8. Satellite communication suffers from:
- a) Low cost
 - b) High latency**
 - c) Small coverage
 - d) Low bandwidth
9. Which is NOT a guided medium?
- a) Twisted pair
 - b) Coaxial
 - c) Microwave**
 - d) Fiber optic
10. TDM stands for:
- a) Time Division Multiplexing**
 - b) Total Data Management
 - c) Transmission Delay Measurement
 - d) Terminal Data Mode
11. CDMA uses:
- a) Unique codes**
 - b) Time slots
 - c) Frequency bands
 - d) Packet switching
12. Cable TV networks use:
- a) Twisted pair
 - b) Coaxial**
 - c) Fiber
 - d) Infrared
13. Which is NOT a transmission impairment?
- a) Attenuation
 - b) Noise
 - c) Protocol error**
 - d) Distortion
14. Nyquist theorem calculates:
- a) Maximum data rate**
 - b) Error rate
 - c) Signal strength
 - d) Bandwidth
15. Bluetooth operates in:
- a) 2.4 GHz
 - b) 2.4 GHz ISM band**
 - c) 5 GHz
 - d) Licensed spectrum
16. Which switching has no setup delay?
- a) Circuit
 - b) Packet**

- c) Message
 - d) Virtual
17. FDM separates signals by:
- a) Frequency**
 - b) Time
 - c) Code
 - d) Phase
18. The physical layer is OSI layer:
- a) 1**
 - b) 2
 - c) 3
 - d) 4
19. Which is NOT a wireless medium?
- a) Microwave
 - b) Radio
 - c) Coaxial**
 - d) Infrared
20. Shannon capacity considers:
- a) Voltage
 - b) SNR**
 - c) Protocol
 - d) Latency
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Unit 3: Data Link Layer

1. The data link layer handles:
- a) Framing**
 - b) Routing
 - c) Encryption
 - d) Compression
2. HDLC is a:
- a) Bit-oriented protocol**
 - b) Byte-oriented protocol
 - c) Packet-switching protocol
 - d) Routing protocol
3. CRC detects:
- a) Errors**
 - b) Routing loops
 - c) Congestion
 - d) Latency
4. CSMA/CD is used in:
- a) Ethernet**
 - b) Token Ring
 - c) ATM
 - d) Frame Relay

5. PPP is used for:
 - a) **Point-to-point links**
 - b) Broadcast networks
 - c) Satellite links
 - d) Cellular networks
6. Token passing avoids:
 - a) **Collisions**
 - b) Errors
 - c) Latency
 - d) Attenuation
7. Ethernet uses:
 - a) **CSMA/CD**
 - b) Token passing
 - c) TDMA
 - d) FDMA
8. VLANs separate:
 - a) **Broadcast domains**
 - b) Physical networks
 - c) Protocols
 - d) Applications
9. Bluetooth is a:
 - a) **Wireless PAN**
 - b) Wired LAN
 - c) MAN technology
 - d) WAN protocol
10. FDDI uses:
 - a) **Token passing**
 - b) CSMA/CD
 - c) Polling
 - d) Aloha
11. ARQ stands for:
 - a) **Automatic Repeat Request**
 - b) Address Resolution Query
 - c) Analog Relay Quality
 - d) Access Request Queue
12. IEEE 802.11 supports:
 - a) **Wireless LAN**
 - b) Ethernet
 - c) Token Ring
 - d) ATM
13. Which is NOT a MAC method?
 - a) CSMA
 - b) Token passing
 - c) **IP addressing**
 - d) Polling

14. Ethernet address length:
a) **48 bits**
b) 32 bits
c) 64 bits
d) 128 bits
15. LLC sublayer provides:
a) **Interface to network layer**
b) Physical addressing
c) Signal encoding
d) Error detection
16. In CSMA, stations:
a) **Sense the channel**
b) Wait for token
c) Use time slots
d) Follow polling
17. Token Ring speed:
a) 1 Mbps
b) **4/16 Mbps**
c) 100 Mbps
d) 1 Gbps
18. Which is NOT a frame field?
a) Source address
b) Destination address
c) **TTL**
d) CRC
19. Wireless LAN standard:
a) **IEEE 802.11**
b) IEEE 802.3
c) IEEE 802.5
d) IEEE 802.16
20. Ethernet frame minimum size:
a) **64 bytes**
b) 128 bytes
c) 256 bytes
d) 512 bytes

Unit 4: Network Layer

1. The main function of the network layer is:
a) Error correction
b) **Packet forwarding and routing**
c) Data encryption
d) Signal amplification
2. IPv4 uses how many bits for addressing?
a) 16
b) 32

- c) 64
 - d) 32**
3. Which is a class C IP address range?
- a) 1.0.0.0 to 126.0.0.0
 - b) 192.0.0.0 to 223.255.255.255**
 - c) 224.0.0.0 to 239.255.255.255
 - d) 128.0.0.0 to 191.255.255.255
4. NAT stands for:
- a) Network Address Translation**
 - b) Network Access Time
 - c) Node Address Table
 - d) Network Allocation Table
5. The IPv4 header TTL field prevents:
- a) Packet loss
 - b) Infinite looping**
 - c) Fragmentation
 - d) Collisions
6. IPv6 addresses use how many bits?
- a) 32
 - b) 128**
 - c) 64
 - d) 256
7. Which routing algorithm uses hop count?
- a) Distance Vector**
 - b) Link State
 - c) Path Vector
 - d) Spanning Tree
8. OSPF is a:
- a) Link-state protocol**
 - b) Distance-vector protocol
 - c) Hybrid protocol
 - d) Exterior gateway protocol
9. ARP resolves:
- a) IP to MAC address**
 - b) MAC to IP address
 - c) Domain to IP
 - d) IP to port
10. ICMP is used for:
- a) Error reporting**
 - b) File transfer
 - c) Email delivery
 - d) Web browsing
11. Which is NOT an IPv6 improvement?
- a) Larger address space
 - b) Built-in security

- c) **Checksum field**
 - d) Simplified header
12. BGP is used for:
- a) **Inter-domain routing**
 - b) Local area networks
 - c) Wireless networks
 - d) Virtual circuits
13. Multicast addresses belong to which class?
- a) Class A
 - b) Class B
 - c) **Class D**
 - d) Class E
14. The MTU determines:
- a) **Maximum packet size**
 - b) Routing table size
 - c) Network diameter
 - d) Bandwidth limit
15. Which is a private IP range?
- a) **10.0.0.0 to 10.255.255.255**
 - b) 100.0.0.0 to 100.255.255.255
 - c) 200.0.0.0 to 200.255.255.255
 - d) 1.0.0.0 to 1.255.255.255
16. The protocol field in IPv4 identifies:
- a) **Upper layer protocol**
 - b) Routing protocol
 - c) Application protocol
 - d) Security protocol
17. Which is NOT a routing metric?
- a) Hop count
 - b) Bandwidth
 - c) **MAC address**
 - d) Delay
18. Tunneling is used for:
- a) **IPv6 over IPv4**
 - b) Ethernet over Wi-Fi
 - c) TCP over UDP
 - d) HTTP over FTP
19. The IPv6 loopback address is:
- a) ::0
 - b) **::1**
 - c) FF00::
 - d) 2001::
20. Routing tables contain:
- a) **Destination and next hop**
 - b) MAC addresses

- c) Application ports
- d) Encryption keys

Unit 5: Transport Layer

1. The transport layer provides:
 - a) End-to-end communication**
 - b) Bit-level transmission
 - c) Network addressing
 - d) Electrical signaling
2. UDP is:
 - a) Connectionless**
 - b) Reliable
 - c) Connection-oriented
 - d) Secure
3. TCP uses what for reliability?
 - a) Acknowledgments**
 - b) Checksums only
 - c) Larger packets
 - d) Faster transmission
4. The three-way handshake establishes:
 - a) TCP connection**
 - b) UDP session
 - c) IP route
 - d) HTTP request
5. Which is NOT a TCP feature?
 - a) Flow control
 - b) Congestion control
 - c) Low overhead**
 - d) Ordered delivery
6. Port numbers identify:
 - a) Applications**
 - b) Networks
 - c) Devices
 - d) Protocols
7. The UDP header is how many bytes?
 - a) 4
 - b) 8**
 - c) 16
 - d) 20
8. Selective Repeat ARQ:
 - a) Retransmits only lost packets**
 - b) Retransmits all packets
 - c) Uses no acknowledgments
 - d) Works at network layer
9. TCP window size affects:
 - a) Flow control**

- b) Routing
- c) Addressing
- d) Encryption

10. Which is NOT a TCP state?

- a) SYN_SENT
- b) ESTABLISHED
- c) FORWARDING**
- d) TIME_WAIT

11. RPC uses which transport protocol?

- a) Both TCP and UDP**
- b) Only TCP
- c) Only UDP
- d) ICMP

12. The checksum covers:

- a) Header and data**
- b) Only header
- c) Only data
- d) Routing tables

13. Nagle's algorithm reduces:

- a) Small packets**
- b) Bandwidth
- c) Latency
- d) Errors

14. TCP congestion control uses:

- a) AIMD**
- b) ARP
- c) DNS
- d) DHCP

15. Which is NOT a transport layer protocol?

- a) TCP
- b) UDP
- c) IP**
- d) SCTP

16. The UDP length field counts:

- a) Header + data**
- b) Only data
- c) Only header
- d) Padding

17. TCP sequence numbers count:

- a) Bytes**
- b) Packets
- c) Bits
- d) Frames

18. Socket address combines:

- a) IP and port**
- b) MAC and IP

- c) Port and protocol
 - d) Sequence and ACK numbers
19. Which transport protocol is faster?
- a) UDP**
 - b) TCP
 - c) Both equal
 - d) SCTP
20. TCP flow control uses:
- a) Window size**
 - b) Packet size
 - c) Routing tables
 - d) MAC addresses

Unit 6: Application Layer

1. DNS translates:
 - a) Names to IPs**
 - b) IPs to MACs
 - c) Ports to services
 - d) Protocols to ports
2. HTTP uses port:
 - a) 80**
 - b) 21
 - c) 25
 - d) 53
3. Which is NOT an HTTP method?
 - a) GET
 - b) POST
 - c) SEND**
 - d) PUT
4. HTTPS adds:
 - a) Encryption**
 - b) Compression
 - c) Fragmentation
 - d) Multicasting
5. FTP uses how many ports?
 - a) 2**
 - b) 1
 - c) 0
 - d) 4
6. SMTP is for:
 - a) Email transfer**
 - b) File transfer
 - c) Web pages
 - d) Directory services
7. POP3 vs IMAP:
 - a) IMAP keeps server copies**

- b) POP3 is newer
 - c) IMAP uses less bandwidth
 - d) POP3 supports folders
8. DHCP provides:
- a) IP configuration**
 - b) Name resolution
 - c) File storage
 - d) Web hosting
9. Telnet uses port:
- a) 21
 - b) 23**
 - c) 25
 - d) 80
10. MRTG monitors:
- a) Network traffic**
 - b) CPU temperature
 - c) Disk space
 - d) Memory usage
11. SNMP uses port:
- a) 161**
 - b) 80
 - c) 21
 - d) 25
12. Wireshark is a:
- a) Packet analyzer**
 - b) Protocol
 - c) Firewall
 - d) Router
13. Which is stateful?
- a) HTTP/1.1**
 - b) HTTP/1.0
 - c) FTP
 - d) DNS
14. Web cookies are used for:
- a) Session management**
 - b) Encryption
 - c) Compression
 - d) Routing
15. Which is NOT an email protocol?
- a) SMTP
 - b) POP3
 - c) IMAP
 - d) FTP**
16. DNS records include:
- a) A, MX, CNAME**
 - b) TCP, UDP, IP

- c) HTTP, FTP, SMTP
 - d) GET, POST, PUT
17. The WWW is based on:
- a) HTTP/HTML**
 - b) FTP
 - c) SMTP
 - d) DNS
18. Packet tracer is used for:
- a) Network simulation**
 - b) Virus scanning
 - c) Data backup
 - d) Disk formatting
19. HTTP status code 404 means:
- a) Not found**
 - b) Server error
 - c) Forbidden
 - d) Redirect
20. Which is NOT a MIME type?
- a) text/html
 - b) image/jpeg
 - c) packet/tcp**
 - d) application/json

Unit 7: Network Security

1. Symmetric encryption uses:
- a) Same key**
 - b) Public/private keys
 - c) No keys
 - d) Session keys
2. RSA is:
- a) Public-key algorithm**
 - b) Symmetric cipher
 - c) Hash function
 - d) Protocol
3. Digital signatures provide:
- a) Authentication**
 - b) Bandwidth
 - c) Routing
 - d) Compression
4. IPsec operates at which layer?
- a) Application
 - b) Transport
 - c) Network**
 - d) Physical
5. VPN creates:
- a) Secure tunnel**

- b) Faster network
 - c) New protocol
 - d) Physical link
6. Firewalls can filter by:
- a) IP/port/protocol**
 - b) Only IP
 - c) Only port
 - d) Only protocol
7. WPA2 uses:
- a) AES encryption**
 - b) DES
 - c) RSA
 - d) MD5
8. Which is NOT a firewall type?
- a) Packet-filtering
 - b) Stateful
 - c) Symmetric**
 - d) Application-level
9. SSL/TLS provides:
- a) Secure transport**
 - b) Faster routing
 - c) Packet switching
 - d) Error correction
10. Man-in-the-middle attacks target:
- a) Confidentiality**
 - b) Bandwidth
 - c) Latency
 - d) Routing
11. Which is a symmetric cipher?
- a) AES**
 - b) RSA
 - c) ECC
 - d) DSA
12. Certificate Authorities verify:
- a) Public keys**
 - b) Private keys
 - c) Passwords
 - d) Protocols
13. WEP is insecure due to:
- a) Weak IVs**
 - b) Slow speed
 - c) Complex setup
 - d) Large packets
14. IPSec modes are:
- a) Transport and tunnel**
 - b) Symmetric and asymmetric

- c) Public and private
- d) Local and remote

15. Which provides non-repudiation?

- a) Digital signatures**
- b) Encryption
- c) Compression
- d) Routing

16. SSH replaces:

- a) Telnet**
- b) HTTP
- c) FTP
- d) DNS

17. DMZ in network security is:

- a) Semi-protected zone**
- b) Encryption standard
- c) Firewall type
- d) VPN protocol

18. Which is NOT a hash function?

- a) SHA-256
- b) MD5
- c) RSA**
- d) SHA-1

19. Two-factor authentication uses:

- a) Something you know and have**
- b) Two passwords
- c) Two firewalls
- d) Two networks

20. IDS stands for:

- a) Intrusion Detection System**
- b) Internet Data Service
- c) IPsec Delivery System
- d) Interface Definition Standard