**Quiz**

1. Which of the following protocols is used for secure communication over the Internet, such as for online shopping and banking?

a. FTP

b. HTTP

c. HTTPS

d. SMTP

Answer: c. HTTPS

2. Which of the following is a connectionless transport layer protocol?

a. TCP

b. IP

c. UDP

d. HTTP

Answer: c. UDP

3. Which transport layer protocol offers error-checking, flow control, and sequencing of data?

a. TCP

b. UDP

c. ICMP

d. HTTP

Answer: a. TCP

4. Which protocol is responsible for routing data packets on the Internet?

a. HTTP

b. FTP

c. OSPF

d. BGP

Answer: d. BGP

5. Which sliding window protocol uses a fixed-size sender window and a variable-size receiver window?

a. Stop-and-Wait

b. Go-Back-N

c. Selective Repeat

d. Sliding Select

Answer: c. Selective Repeat

6. How many bits are there in an IPv6 address?

a. 16 bits

b. 32 bits

c. 64 bits

d. 128 bits

Answer: d. 128 bits

7. Which of the following is a valid IPv6 address format?

a. 192.168.1.1

b. FE80::1

c. 255.255.255.0

d. 172.16.0.1

Answer: b. FE80::1

8. Which routing protocol is a distance-vector routing protocol and uses hop count as the metric for route selection?

a. OSPF

b. RIP

c. BGP

d. EIGRP

Answer: b. RIP

9. In RIP (Routing Information Protocol), what is the maximum hop count for a valid route?

a. 15

b. 100

c. 256

d. There is no maximum hop count in RIP.

Answer: a. 15

10. Which routing protocol is classless and supports VLSM (Variable Length Subnet Masking)?

a. OSPF

b. RIP

c. BGP

d. EIGRP

Answer: a. OSPF

11. BGP is categorized as a \_\_\_\_\_\_\_\_\_\_\_\_\_\_ routing protocol.

a. Interior

b. Exterior

c. Link-state

d. Distance-vector

Answer: b. Exterior

12. Which of the following is the primary purpose of flow control in computer networks?

a. To prevent errors in data transmission

b. To ensure data is delivered in the correct order

c. To manage the rate of data transmission between sender and receiver

d. To route data packets across the network

Answer: c. To manage the rate of data transmission between sender and receiver

13. Which error correction technique can not only detect errors but also correct them?

a. Checksum

b. Parity bit

c. Hamming code

d. Cyclic Redundancy Check (CRC)

Answer: c. Hamming code

14. In the context of error control, what is a "parity bit"?

a. A mechanism for preventing network congestion

b. A control message used in flow control

c. A single bit added to data to detect errors

d. A type of routing algorithm

Answer: c. A single bit added to data to detect errors

15. What type of Ethernet cable is commonly used for Gigabit Ethernet connections?

a. Category 5e (Cat5e)

b. Coaxial cable

c. Fiber optic cable

d. Category 3 (Cat3)

Answer: c. Fiber optic cable

16. Which technology is used to detect and resolve collisions in Ethernet networks?

a. ARP (Address Resolution Protocol)

b. CSMA/CD (Carrier Sense Multiple Access with Collision Detection)

c. TCP (Transmission Control Protocol)

d. BGP (Border Gateway Protocol)

Answer: b. CSMA/CD (Carrier Sense Multiple Access with Collision Detection)

17. What is the purpose of a "token" in a Token Ring network?

a. To authorize access to the network

b. To transmit data packets

c. To identify network devices

d. To manage network collisions

Answer: a. To authorize access to the network

18. Which of the following is an example of a VRC scheme?

a. Parity bit

b. Cyclic Redundancy Check (CRC)

c. Hamming code

d. Longitudinal Redundancy Check (LRC)

Answer: a. Parity bit

19. Which is the default transport layer protocol used by the World Wide Web (WWW)?

a. UDP

b. HTTP

c. FTP

d. TCP

Answer: d. TCP

20. In which scenario is UDP commonly used?

a. Secure online banking

b. Video conferencing and online gaming

c. Web page retrieval using HTTP

d. File transfer with FTP

Answer: b. Video conferencing and online gaming

21. TCP is a \_\_\_\_\_\_\_\_\_\_ protocol.

a. Connectionless

b. Connection-oriented

c. Reliable

d. Encrypted

Answer: b. Connection-oriented

22. Which HTTP method is typically used to retrieve data from a web server?

a. POST

b. PUT

c. GET

d. DELETE

Answer: c. GET

23. Which of the following protocols is responsible for ensuring the reliable and error-free transfer of data in the Transport Layer of the OSI model?

a. HTTP

b. FTP

c. TCP

d. UDP

Answer: c. TCP

25. Which routing algorithm calculates the shortest path in a network using a link-state database?

a. OSPF

b. RIP

c. BGP

d. EIGRP

Answer: a. OSPF

26. Which protocol is used for securely transferring files over a network?

a. HTTP

b. FTP

c. SMTP

d. POP3

Answer: b. FTP

27. Which routing protocol is commonly used within an autonomous system (AS) and is based on link-state information?

a. OSPF

b. RIP

c. BGP

d. EIGRP

Answer: a. OSPF

28. Which routing algorithm is used by RIP (Routing Information Protocol)?

a. Dijkstra's algorithm

b. Bellman-Ford algorithm

c. Link-State algorithm

d. Distance-Vector algorithm

Answer: d. Distance-Vector algorithm

29. What does "FTP" stand for in computer networking?

a. File Transfer Protocol

b. Fast Transport Protocol

c. Firewall Transfer Protocol

d. File Transmission Program

30. What does "URL" stand for in the context of the World Wide Web?

a. Uniform Resource Locator

b. Universal Routing Link

c. Unified Resource Locator

d. Unique Resource Link

Answer: a. Uniform Resource Locator

31. In a network with a latency of 40 milliseconds, how long does it take to establish a TCP connection (considering the 3-way handshake)?

a. 10 milliseconds

b. 20 milliseconds

c. 40 milliseconds

d. 80 milliseconds

Answer: d. 80 milliseconds

32. If you have a network with a bandwidth of 10 Mbps and a one-way propagation delay of 10 milliseconds, what is the maximum achievable throughput using the Stop-and-Wait protocol?

a. 1 Mbps

b. 2 Mbps

c. 5 Mbps

d. 10 Mbps

Answer: a. 1 Mbps

33. If the round-trip time (RTT) between two hosts is 40 milliseconds and the bandwidth is 100 Mbps, what is the maximum achievable throughput using the TCP protocol?

a. 10 Mbps

b. 20 Mbps

c. 40 Mbps

d. 100 Mbps

Answer: c. 40 Mbps