

Week 3 assignment

Network Layer

أولاً: الاختيار من متعدد

Q6. When TTL reaches zero, the router will:

- A) Forward the packet
- B) Encrypt the packet
- C) Drop the packet
- D) Fragment the packet

Q1. Which OSI layer is responsible for logical addressing and routing?

- A) Data Link
- B) Transport
- C) Network
- D) Physical

Q7. IPv4 address size is:

- A) 16 bits
- B) 32 bits
- C) 64 bits
- D) 128 bits

Q2. The main protocol used at the Network Layer is:

- A) TCP
- B) UDP
- C) IP
- D) ARP

Q8. IPv6 was developed by:

- A) ISO
- B) IEEE
- C) IETF
- D) Cisco

Q3. Which of the following is NOT a basic operation of the Network Layer?

- A) Addressing
- B) Routing
- C) Encapsulation
- D) Encryption

Q9. IPv6 address size is:

- A) 32 bits
- B) 64 bits
- C) 96 bits
- D) 128 bits

Q4. IP is described as:

- A) Connection-oriented
- B) Physical address
- C) Best effort
- D) Session-based

Q10. Which IPv4 fields were removed in IPv6 to improve performance?

- A) Source Address
- B) TTL
- C) Header Checksum
- D) Protocol

Q5. Which field in IPv4 header prevents packets from looping forever?

- A) Protocol
- B) TTL
- C) Checksum
- D) Version

Q16. A default route is represented by which symbol?

- A) C
 - B) L
 - C) S
 - D) S*
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Q17. Static routing is best suited for:

- A) Large dynamic networks
 - B) Small simple networks
 - C) Wireless networks only
 - D) Internet backbone
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Q18. Dynamic routing protocols can:

- A) Discover networks automatically
 - B) Work without routers
 - C) Replace IP
 - D) Eliminate routing tables
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Q19. Which OSI layer is responsible for moving frames hop-to-hop?

- A) Physical
 - B) Network
 - C) Data Link
 - D) Transport
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Q20. Encapsulation means:

- A) Encrypting data
 - B) Compressing data
 - C) Adding headers at each layer
 - D) Routing packets
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Q11. TTL in IPv6 is replaced by:

- A) Time Limit
 - B) Hop Count
 - C) Hop Limit
 - D) Flow Label
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Q12. Which device is usually the Default Gateway?

- A) Hub
 - B) Switch
 - C) Router
 - D) Repeater
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Q13. If a destination is not on the same LAN, traffic is sent to:

- A) DNS Server
 - B) MAC Address
 - C) Default Gateway
 - D) Loopback Address
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Q14. Which command displays the routing table on Windows?

- A) ipconfig
 - B) show ip route
 - C) route print
 - D) traceroute
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Q15. Which routing table entry represents a directly connected network?

- A) S
- B) D
- C) C
- D) O

ثانياً: الأسئلة المقالية

Q1. Explain the main functions of the Network Layer in the OSI model.

Q2. Compare between IPv4 and IPv6 in terms of address size, header structure, and NAT usage.

Q3. Explain how a host decides whether a destination is local or remote.

Q4. Describe the role of the Default Gateway and explain what happens if it is not configured.

Q5. Compare between Static Routing and Dynamic Routing (advantages and disadvantages).
