Top 35 Networking Interview Questions and Answers (TCP/IP, DNS, HTTP/HTTPS, Firewalls) for DevOps Jobs in 2025.

1. TCP/IP Basics

1. **What is TCP/IP, and how does it work?**
    - TCP/IP is a suite of communication protocols used for the internet and networks, where TCP ensures reliable data delivery, and IP handles addressing and routing.
2. **What is the difference between TCP and UDP?**
    - TCP is connection-oriented, ensures reliable delivery, and supports retransmissions. UDP is connectionless, faster, and does not guarantee delivery.
3. **What are the key layers of the TCP/IP model?**
    - **Application Layer** (HTTP, DNS)
    - **Transport Layer** (TCP, UDP)
    - **Internet Layer** (IP, ICMP)
    - **Network Access Layer** (Ethernet, Wi-Fi)
4. **What is the difference between IPv4 and IPv6?**
    - IPv4 uses 32-bit addresses (e.g., 192.168.1.1), while IPv6 uses 128-bit addresses (e.g., 2001:db8::1), providing a larger address space.
5. **What is a subnet mask, and why is it important?**
    - A subnet mask defines the network and host portions of an IP address (e.g., 255.255.255.0 means the first 3 octets are the network, last is the host).
6. **How do you check your system's IP address?**
    - Use ip a or ifconfig (Linux) and ipconfig (Windows).
7. **What is the purpose of a default gateway?**
    - It is the router that forwards packets when the destination is outside the local network.

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2. DNS (Domain Name System)

8. **What is DNS, and why is it important?**
    - DNS translates domain names (e.g., google.com) into IP addresses (e.g., 8.8.8.8).
9. **What are the different types of DNS records?**
    - **A** (IPv4 address), **AAAA** (IPv6 address), **CNAME** (alias), **MX** (mail exchange), **TXT** (text records), **NS** (name servers).
10. **How do you check DNS resolution for a domain?**
    - Use nslookup domain.com or dig domain.com in Linux.
11. **What is the difference between recursive and iterative DNS queries?**
    - **Recursive** queries ask DNS servers to resolve a domain completely. **Iterative** queries allow partial responses, letting the client perform further lookups.
12. **What is a DNS forwarder?**
    - A DNS server that forwards queries to an upstream DNS resolver instead of resolving them itself.
13. **What is TTL in DNS?**
    - Time To Live (TTL) is the duration a DNS record is cached before refreshing.
14. **What is a reverse DNS lookup?**
    - Reverse lookup maps an IP address back to a domain name (dig -x IP).

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3. HTTP/HTTPS

15. **What is the difference between HTTP and HTTPS?**
    - HTTPS is HTTP with SSL/TLS encryption for secure communication.
16. **What are the common HTTP methods?**
    - **GET** (retrieve data), **POST** (send data), **PUT** (update), **DELETE** (remove data), **PATCH** (partial update).
17. **What are HTTP status codes?**
    - **2xx** (Success), **3xx** (Redirection), **4xx** (Client Error), **5xx** (Server Error).

18. **What is an HTTP 301 vs. 302 redirect?**
    - **301 (Permanent Redirect)** updates bookmarks, **302 (Temporary Redirect)** does not.
19. **What is an HTTP 500 vs. 502 error?**
    - **500 (Internal Server Error)** is a general server issue, **502 (Bad Gateway)** means an upstream service failed.
20. **What is CORS (Cross-Origin Resource Sharing)?**
    - A mechanism that allows a server to specify which domains can access its resources via HTTP headers.
21. **What is HSTS (HTTP Strict Transport Security)?**
    - A security feature that forces browsers to use HTTPS instead of HTTP.
22. **How does TLS handshake work?**
    - The client and server exchange keys and negotiate encryption before establishing a secure connection.

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4. Firewalls & Security

23. **What is a firewall?**
    - A network security system that filters traffic based on rules.
24. **What is the difference between stateful and stateless firewalls?**
    - **Stateful firewalls** track active connections, while **stateless firewalls** inspect packets individually.
25. **How do you check open ports on a system?**
    - netstat -tulnp, ss -tulnp, or nmap localhost.
26. **How do you block an IP using iptables?**
    - iptables -A INPUT -s <IP> -j DROP
27. **What is the difference between iptables and firewalld?**
    - iptables is a rule-based firewall, while firewalld is a dynamic firewall that supports zones.
28. **What is a DMZ (Demilitarized Zone)?**

- A network segment that isolates external-facing services from internal systems.

29. **What is a VPN (Virtual Private Network)?**
    - A secure tunnel that encrypts internet traffic between a client and a server.
30. **How does NAT (Network Address Translation) work?**
    - It translates private IP addresses to a public IP for internet access.

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5. Networking Tools & Troubleshooting

31. **How do you test network connectivity?**
    - ping <IP>
32. **How do you check network routes?**
    - route -n or ip route show
33. **How do you trace a network route?**
    - traceroute <IP> (Linux) or tracert <IP> (Windows).
34. **How do you capture network packets?**
    - tcpdump -i eth0 or wireshark.
35. **How do you restart the network service?**
    - systemctl restart networking (Linux).