Networking Interview Questions

. Basic Networking Interview Questions

1. **What is a computer network?**
2. **What are the different types of networks (LAN, MAN, WAN)?**
3. **What is the difference between Internet, Intranet, and Extranet?**
4. **What are the key components of a network?**
5. **What is the OSI model, and why is it important?**
6. **How many layers are there in the OSI model?**
7. **What is the difference between the OSI model and TCP/IP model?**
8. **What is a protocol in networking?**
9. **What is an IP address, and why is it used?**
10. **What is the difference between IPv4 and IPv6?**

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2. Network Topologies & Architectures

11. **What are different types of network topologies?**
12. **What is the difference between star, bus, ring, and mesh topology?**
13. **What are client-server and peer-to-peer networks?**
14. **What is a MAC address, and how is it different from an IP address?**
15. **What is the purpose of a subnet mask?**
16. **What is CIDR (Classless Inter-Domain Routing)?**
17. **What is a default gateway, and why is it needed?**
18. **What is NAT (Network Address Translation), and why is it used?**
19. **What is DHCP (Dynamic Host Configuration Protocol)?**
20. **What is the difference between static and dynamic IP addressing?**

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3. Network Devices & Their Functions

21. **What is a router, and how does it work?**
22. **What is a switch, and how is it different from a hub?**
23. **What is a hub, and why is it not used in modern networks?**
24. **What is a modem, and what is its role in networking?**
25. **What is an access point, and how does it work?**

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26. What is a firewall, and why is it used?

27. What is a gateway in networking?

28. What is the difference between a repeater and an amplifier?

29. What is a bridge, and how does it work?

30. What is the difference between Layer 2 and Layer 3 switches?

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4. IP Addressing & Subnetting

31. What are the different IP address classes (A, B, C, D, E)?

32. How does subnetting work?

33. What is a broadcast address?

34. What is a loopback address, and why is it used?

35. What is the difference between public and private IP addresses?

36. What is the difference between unicast, multicast, and broadcast?

37. What is the purpose of an IPv6 address, and how is it structured?

38. What is an APIPA address (Automatic Private IP Addressing)?

39. How do you calculate the number of hosts in a subnet?

40. What is the 127.0.0.1 IP address used for?

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5. Routing & Switching

41. What is routing, and why is it important?

42. What is the difference between static and dynamic routing?

43. What are distance-vector and link-state routing protocols?

44. What is RIP (Routing Information Protocol)?

45. What is OSPF (Open Shortest Path First)?

46. What is BGP (Border Gateway Protocol)?

47. What is the difference between interior and exterior routing protocols?

48. What is VLAN (Virtual Local Area Network)?

49. What is trunking, and how does it work?

50. What is STP (Spanning Tree Protocol), and why is it needed?

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6. TCP/IP & Transport Layer

51. What is TCP/IP, and how does it work?

52. What is the difference between TCP and UDP?

53. What is port number, and why is it important?

54. What are some common port numbers? (e.g., HTTP, HTTPS, FTP, SSH)

55. What is a socket in networking?

56. What is handshaking in TCP/IP?

57. What is a three-way handshake in TCP?

58. What is flow control in networking?

59. What is congestion control in networking?

60. What is the difference between ICMP and ARP?

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7. Wireless Networking & Security

61. What is Wi-Fi, and how does it work?

62. What is the difference between 2.4GHz and 5GHz networks?

63. What are WEP, WPA, WPA2, and WPA3?

64. What is SSID (Service Set Identifier)?

65. What is the difference between ad-hoc and infrastructure mode?

66. What is Bluetooth, and how is it different from Wi-Fi?

67. What is network sniffing, and how can you prevent it?

68. What is VPN (Virtual Private Network)?

69. What is MAC filtering, and how does it enhance security?

70. What is RADIUS authentication?

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8. Network Security & Threats

71. What is firewall, and how does it protect networks?

72. What is the difference between hardware and software firewalls?

73. What are DDoS attacks, and how do they work?

74. What is phishing, and how can users protect against it?

75. What is a man-in-the-middle (MITM) attack?

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76. What is DNS spoofing, and how does it work?

77. What are intrusion detection and intrusion prevention systems (IDS/IPS)?

78. What is port scanning, and why is it done?

79. What is SSL/TLS, and how does it secure web communication?

80. What is zero-trust security, and why is it important?

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9. Cloud & Virtual Networking

81. What is cloud networking?

82. What are public, private, and hybrid clouds?

83. What is SDN (Software-Defined Networking)?

84. What is edge computing, and how does it impact networking?

85. What is the difference between IaaS, PaaS, and SaaS?

86. What is a virtual network interface card (vNIC)?

87. What is container networking in Kubernetes?

88. What is IPv6 tunneling, and how does it work?

89. What is network slicing in 5G?

90. What are cloud firewalls, and how do they work?

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10. Advanced Networking Concepts

91. What is multiplexing in networking?

92. What is MPLS (Multiprotocol Label Switching)?

93. What is QoS (Quality of Service), and why is it needed?

94. What is Anycast, and how is it different from Unicast?

95. What is Ethernet over IP (EoIP)?

96. What is 5G networking, and how does it differ from 4G?

97. What is IPv4 to IPv6 transition, and what are the methods used?

98. What is DNSSEC (Domain Name System Security Extensions)?

99. What is VoIP (Voice over Internet Protocol)?

100. What is network virtualization, and how is it used?