**Networking & Cyber Security Interview Questions**

1. What is ARP and why is it important in routing? What is proxy ARP? Why is the term proxy used here?
2. Why is sequence numbering in TCP essential ? How segments are acknowledged by the receiver in TCP ?
3. When do you define static routes?
4. Why do we need IP address when the MAC address is unique ? Can't we communicate only with MAC address ?
5. What are the factors that affect the performance of a network?
6. Explain the difference between Bandwidth and Latency in computer networks?
7. Which layer of OSI is concerned with the syntax and semantics of the information exchanged between two systems?
8. When you login to Banks website you see a lock as you enter the bank website? What does it mean and what is the technology that is used ?
9. Why is checksum calculation very important in networks?
10. What is a ransomware ? What happens when your computer is attacked by ransomware ?
11. Explain what is a Man in the Middle attack ? How can it be prevented ?
12. What is piggybacking in networking world ?
13. What is source routing ?
14. What do you understand by Quality of Service in the networking world and which field of IP helps in achieving the QOS ?
15. What are the conversion steps of data encapsulation at different layers of OSI ? Basically we are looking at how it is getting treated at different OSI Layers ?
16. What are Access Control Lists and why is it being used ?
17. What is the difference between L2 and L3 QOS ?
18. Under what conditions the router or switch becomes congested and what typically happens in this scenario ?
19. How does DHCP aid a network administrator ?
20. What are the advantages of ipv6 addressing over ipv4 ?
21. What is flow control, and what are the three methods of implementing it ?
22. What is the significance of the Window Size in the TCP header ?
23. Explain the process of IP Aggregation ( Supernetting with an example )
24. Give some example of Layer 1, Layer 2 & Layer 3 devices
25. What are the advantages of subnetting ?
26. What are the 3 ways in which Routing Tables get populated ?
27. Switches work on the principle : Learn, Forward or Flood. Can you explain each of these with an example
28. What happens in TCP when messages are lost ? What happens when acknowledgements are lost ?
29. Why do we call TCP is connection oriented and UDP as connection less ?
30. What is the difference between the FIN & RST flags in the TCP header ?
31. Why is TCP less suitable for Voice Over IP ?
32. What are the functions of Logical Link Control (LLC) & Media Access Control (MAC) sub layers of the Data Link Layer ?
33. What is the significance of the Retransmission Timeout in TCP ?
34. Switches & Bridges are both Layer 2 devices ? Explain what is the difference.
35. Explain the difference between a Router and a Gateway
36. Explain the meaning of these terms with appropriate examples

Data Link Layer => Hop to Hop

Network Layer => End to End

Transport Layer => Service to Service

1. Why is UDP not suited for services such as emails, file transfer etc. ?
2. Explain why UDP is best suited for live streaming & multimedia ?
3. Explain the statement – “TCP has a lot of overheads compared to UDP”
4. What do you mean by physical addressing and logical addressing in the networking world ?
5. Explain how TCP does error detection and correction
6. Explain the significance of Phantom Byte in TCP. Why is it required ? Where is it used ?
7. TCP uses the 3 way handshake. Explain the song & dance sequence that happens between the sender and the receiver during the 3 way handshake
8. Explain the difference between Circuit Switched & Packet Switched Networks
9. What is a Vulnerability ? Explain how you will find a vulnerability in a network ?
10. Explain why you need both MAC Address and IP Address for a host ?
11. How does a packet travel from source to destination in a network ?
12. What happens behind the scenes when you type

<http://www.google.com> ( You have to explain DNS, Routing & HTTP )

1. What is HTTPS ? How does it enable secure communication between 2 devices ?
2. What is the significance of a Network Interface Card ?
3. Explain the purpose of a Hub, Switch and Router ?
4. What do we mean by the Hub works on Layer 1, Switch on Layer 2 and Router on Layer 3 ?
5. Explain what happens behind the scenes when you issue a traceroute command ?
6. When a computer gets connected to a Network it is assigned an IP Address, Subnet   
   Mask, Default Gateway and DNS. Explain the significance of these items
7. What is the issue with Classful addressing scheme ? How does Classless Inter Domain   
   Routing (CIDR) help overcome the issue ?
8. What is Variable Length Subnet Masking (VLSM) ? Give an example to explain VLSM ?
9. What is a firewall ? How does it work ?
10. Explain how anti Virus software work ?
11. What is a Phishing attack ? How does it happen ?
12. Explain the concept of Network Virtualization. What are the merits of Virtualization ?
13. What is the significance of ports ? Why do we need them ?
14. Explain how Network Address Translation (NAT) work ?
15. When you type http://www.google.com it fails. How will you troubleshoot the issue ?
16. Explain how the IP address assignment to a host is automated using DHCP ?
17. Explain what happened when you send an email to a friend in Canada how does it reach him/her ?
18. Explain what is Secure Shell (SSH) ? Why do you need a secure shell ? How does it work ?
19. Explain the difference between Symmetric Key Cryptography & Assymmetric Key Cryptography
20. What is the difference between Vulnerability Assessment & Penetration Testing ?
21. Explain the difference between Unicast, Multicast & Broadcast
22. Explain the difference between POP and IMAP protocol
23. Explain the difference between Telnet & SSH
24. What is SNMP ? How does it work ?
25. Distinguish between Ping & Traceroute. What scenarios will Traceroute be helpful where ping won’t ?
26. How can you find the IP address given the domain name ?
27. Explain the important components of
    1. TCP Header ( Layer 4 )
    2. UDP Header ( Layer 4 )
    3. IP Header ( Layer 3 )
    4. MAC Header ( Layer 2 )
28. Explain the difference between FTP, TFTP & SFTP
29. What are the different Network Topologies
30. What are the three types of LAN traffic and explain each of them ?
31. Explain what is the use of the Time To Live (TTL) field in the IP header and what happens when the TTL is set greater than the number of hops?
32. What is MPLS? How does it work and why is it efficient ?