INTRODUCTION TO NETWORKING INTERVIEW QUESTIONS

1.What is a network topology?

Answer: A network topology is the arrangement of various elements (links, nodes, etc.) of a computer network. It can be physical or logical.

2.Explain bus topology.

Answer: In a bus topology, all devices are connected to a single central cable, called the bus. Data sent from one device travels along the bus and is accessible by all other devices on the network.

3.What are the advantages of bus topology?

Answer: Advantages include easy installation, cost-effectiveness for small networks, and simplicity in terms of layout and structure.

4.What are the disadvantages of bus topology?

Answer: Disadvantages include difficulty in troubleshooting, limited cable length and number of stations, and the entire network shutting down if there is a break in the main cable.

5.Describe star topology.

Answer: In a star topology, all devices are connected to a central hub or switch. Data sent from one device goes to the hub, which then forwards it to the destination device.

6.What are the benefits of using star topology?

Answer: Benefits include easier troubleshooting, better performance with centralized control, and isolation of devices, which means that a failure in one cable does not affect the others.

7.What are the drawbacks of star topology?

Answer: Drawbacks include higher costs due to more cabling and dependency on the central hub. If the hub fails, the entire network is affected.

8.Can you explain mesh topology?

Answer: In a mesh topology, devices are interconnected, with many redundant interconnections between network nodes. This provides high reliability and redundancy.

9.What are the advantages of mesh topology?

Answer: Advantages include high fault tolerance, good load balancing, and reliability. If one link fails, data can be rerouted through other paths.

10.What are the disadvantages of mesh topology?

Answer: Disadvantages include high costs due to extensive cabling and complex installation and configuration processes.

11.Which topology is most suitable for a large, robust network?

Answer: Mesh topology is most suitable for large, robust networks due to its high fault tolerance and redundancy.

12.How does a bus topology handle data collisions?

Answer: Bus topology uses Carrier Sense Multiple Access with Collision Detection (CSMA/CD) to handle data collisions. When a collision is detected, devices wait a random period before retransmitting.

13.What is the primary role of the central device in a star topology?

Answer: The central device (hub or switch) in a star topology manages data traffic, ensuring data is sent to the correct destination device.

14.In a mesh topology, what happens if a connection between two nodes fails?

Answer: In a mesh topology, if a connection between two nodes fails, the network can reroute data through other available paths, maintaining network integrity.

15.Which topology is easier to expand, star or bus?

Answer: Star topology is easier to expand since you can simply add more devices to the central hub without disrupting the existing network.

16.Compare the cost implications of implementing a bus topology versus a mesh topology.

Answer: Bus topology is generally cheaper to implement due to less cabling, while mesh topology is more expensive due to extensive cabling and additional hardware requirements.

17.How does a star topology improve network performance compared to a bus topology?

Answer: Star topology improves performance by reducing collisions and isolating data traffic through the central hub, ensuring that each device has a dedicated connection.

18.What type of network topology is often used in wireless networks?

Answer: Mesh topology is often used in wireless networks, providing reliable connections and extended coverage through multiple nodes.

19.Explain the concept of redundancy in mesh topology.

Answer: Redundancy in mesh topology refers to having multiple pathways for data transmission, ensuring that if one path fails, data can be sent through alternative routes.

20.What is a terminator in a bus topology?

Answer: A terminator is a device at each end of the main cable in a bus topology that absorbs signals and prevents them from reflecting back and causing interference.

21.How does the central device in a star topology affect network security?

Answer: The central device in a star topology can enhance network security by monitoring and controlling data traffic, allowing for the implementation of security measures like firewalls and access controls.

22.What are the implications of a hub failure in a star topology?

Answer: If the hub fails in a star topology, the entire network becomes inoperable, as all devices rely on the hub for communication.

23.Why is mesh topology considered highly scalable?

Answer: Mesh topology is considered highly scalable because additional nodes can be connected easily without affecting the overall network performance and structure.

24.In a bus topology, how is data directed to the correct recipient?

Answer: In a bus topology, each device listens for data frames with its unique address. Only the device with the matching address processes the data.

25.What measures can be taken to minimize downtime in a star topology?

Answer: To minimize downtime, you can use a robust central hub with redundant power supplies, implement regular maintenance schedules, and ensure proper network segmentation.