1. What is networking in the context of computer system?

- Networking is the practice of connecting multiple devices that allows communication, resource sharing and data exchange.

2. Why is networking important in modern computing environments

- Enables file and data sharing

- Centralizes management of resources

- Supports internet access and cloud services

- Facilitates communication (email, chat, video calls)

3. Which of the following best describes computer networking?

A. Sharing of hardware only

B. Sharing of data and resources between computers

C. Connecting only to the internet

D. None of the above

Answer: B. Sharing of data and resources between computers.

4. Differentiate between a network and the internet.

- Network is a local network of connecting multiple devices

- Internet is a global network of interconnected computers

5. Is the internet a type of network or a collection of networks? Why?

Yes, because Internet is a collection of interconnected networks and type of WAN (wide area network) that connect multiple LAN (local area network)

6. What are some common uses of the internet in networking?

- Email, web browsing, online shopping, social networking, file sharing, and remote access

7. Name and briefly describe any three network topologies.

- **Star Topology**: All devices are connected to a central hub or switch.

- Common in home and office network

-**Mesh topology**: Every device is connected to every other device.

- used in high-reliability networks like military or critical infrastructure.

- **Hybrid Topology**: combination of two or more topologies (e.g. bus + mesh).

- Common in large, complex networks.

8. In which topology does every device connect to a central hub or switch?

A. Ring

B. Star

C. Mesh

D. Bus

Answer B. Star Topology

9. What are the advantages and disadvantages of mesh topology?

Advantage:

-High fault tolerance

-Reliable and secure

Disadvantages:

-Expensive to implement

-Complex to manage with many devices

10. **LAN: Local Area Network**

- Covers a small geographical area(office, home, school).

- Connects computers and devices within the same location.

- Ex. Computer lab in a university

**MAN: Metropolitan Area Network**

-Covers a city or large campus

-Larger than LAN, smaller than WAN.

-Ex. City-wide fiber optic network

**WAN: Wide Area Network**

-Covers a large geographical area like cities or countries.

-connects multiple LANs using public

-Ex. The Internet

11. Which type of network is most commonly used in schools and small offices? Why?

LAN (Local Area Network).Because High speed, low cost and easy to manage based on covers a small geographical area.

12. Which network type covers the largest geographical area?

A. LAN

B. PAN

C. MAN

D. WAN

Answer D. WAN (Wide Area Network)

13. List and define the function of any four common networking devices.

-**Router**: connect multiple networks together using IP address

-**Switch**: connects multiple devices in a LAN (Local Area Network) using MAC addresses

-**Hub**: connects multiple devices in a network that broadcasts data to all connected device

-**Firewall**: Monitors and controls incoming and outgoing traffic that protects the network from unauthorized access or attacks.

14. What is the difference between a switch and a hub?

**Switch** uses MAC addresses to forward data to the correct device

-Creates efficient LAN communication

-Operates at Layer 2(Data Link Layer

**Hub** is Broadcasts data to all connected devices

-less efficient

-Operates at Layer 1(Physical Layer)

15. A router is used to connect different networks together.

- Answer: True