1. Differentiate between intranet, extranet and internet.

| **Feature** | **Intranet** | **Extranet** | **Internet** |
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| **Definition** | A private network accessible only within an organization. | A controlled network allowing access to external partners. | A global public network that connects millions of computers. |
| **Access** | Only employees or internal users. | Authorized external users (e.g., suppliers, partners). | Anyone with internet connectivity. |
| **Security** | High – used within the organization. | Moderate to High – requires secure access. | Varies – public network, prone to threats if unprotected. |
| **Usage** | Share internal information, documents, and applications. | Collaborate with partners, vendors, or customers. | Public websites, email, social media, cloud services, etc. |
| **Ownership** | Owned and maintained by an organization. | Shared access – partially maintained by the host org. | No single owner; governed by global standards. |

1. Define data communication. Briefly explain the elements required for data communication.

Data communication is the process of establishing a link between 2/more devices through a transmission medium under a set of rules to exchange information.

A diagram of a message and medium

AI-generated content may be incorrect.

The elements required for data communication are:

1. Message
   * The actual data or information to be communicated.
   * Example: Text, audio, video, or files.
2. Sender
   * The device that generates and sends the message.
   * Example: A computer, smartphone, or a sensor.
3. Receiver
   * The device that receives the message.
   * Example: Another computer, mobile device, or server.
4. Transmission Medium
   * The physical path through which the message travels from sender to receiver.
   * Example: Twisted-pair cable, fiber optics, radio waves, etc.
5. Protocol
   * A set of rules that govern the data communication process.
   * Ensures proper formatting, transmission, and interpretation of data.
   * Example: TCP/IP, HTTP, FTP.
6. What is network topology? Explain different types of topology with advantages, disadvantages and diagram.