**Q1. What is CN? What are its uses?**

Computer networks are groups of autonomous computers interconnected by a single technology, enabling them to exchange information. Here are some uses of computer networks:

**Business Applications**: The key issue here is resource sharing. Computer networks allow remote access to information, commonly using the client-server model. For instance, web applications rely on this model to process user requests and provide responses based on a database.

**Home Applications**: At home, computer networks are used for various purposes, from sharing music in a peer-to-peer system to instant messaging, email, and person-to-person communication like Facebook, Wikipedia, and online shopping.

**Mobile Users**: Wireless networks are a rapidly growing segment of the industry, ideal for use in vehicles and other situations where wired networks are impractical. Most devices now use wireless networks, offering a wide range of options.

**Other Uses**: This includes sensor networks, wearable computers, and NFC (Near Field Communication).

**Q2. What are different layers of OSI model? What are uses of each layer?**

The OSI model has seven layers. They are application, presentation, session, transport, network, datalink, physical layer.

The uses of each layer are discussed below:

# Physical layer

The physical layer is concerned with transmitting raw bits over a communication channel.

# Data link layer

The main task of the data link layer is to transform a raw transmission facility into a line that appears free of undetected transmission errors. It does so by masking the real errors so the network layer does not see them. It accomplishes this task by having the sender break up the input data into data frames (typically a few hundred or a few thousand bytes) and transmit the frames sequentially.

# Network layer

The network layer controls the operation of the subnet. When a packet has to travel from one network to another to get to its destination, many problems can arise. The addressing used by the second network may be different from that used by the first one. The second one may not accept the packet at all because it is too large. The protocols may differ, and so on. It is up to the network layer to overcome all these problems to allow heterogeneous networks to be interconnected.

# Transport layer

The basic function of the transport layer is to accept data from above it, split it up into smaller units, if need be, pass these to the network layer, and ensure that the pieces all arrive correctly at the other end.

# Session layer

The session layer allows users on different machines to establish sessions between them. Sessions offer various services, including dialog control (keeping track of whose turn it is to transmit), token management (preventing two parties from attempting the same critical operation simultaneously), and synchronization.

# Presentation layer

Unlike the lower layers, which are mostly concerned with moving bits around, the presentation layer is concerned with the syntax and semantics of the information transmitted. In order to make it possible for computers with different internal data representations to communicate, presentation layer manages these abstract data structures and allows higher-level data structures (e.g., banking records) to be defined and exchanged.

# Application layer

The application layer contains a variety of protocols that are commonly needed by users. One widely used application protocol is HTTP (Hypertext Transfer Protocol), which is the basis for the World Wide Web

**Q3. Difference between the OSI model and TCP/IP model.**

