1. What is computer network?

Ans: A computer network is a group of computer systems and other computing hardware devices that are linked together through communication channels to facilitate communication and resource-sharing among a wide range of users. Most common computer networks are Local area network (LAN), Metropolitan area network (MAN), Wide area network (WAN).
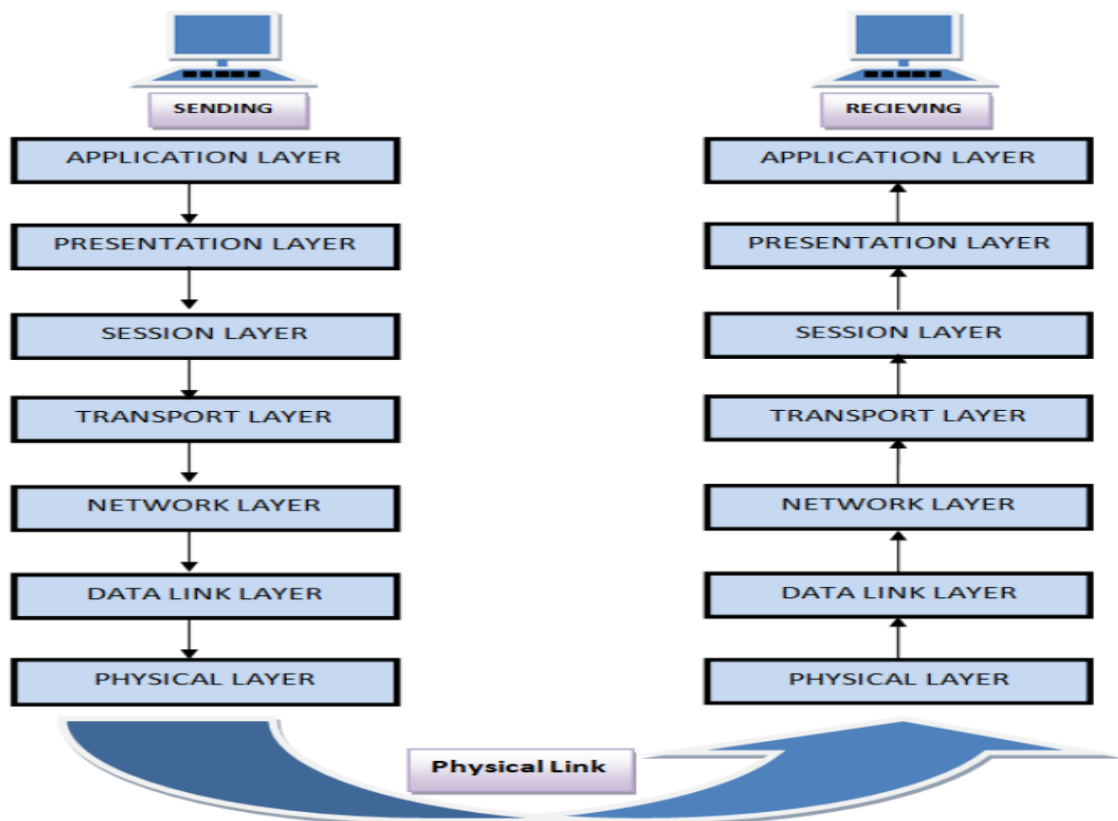
2. What are the usage of computer networks?
   Ans:
   a. Communication
   b. Resource sharing
   c. Information access
   d. Distributed computing
   e. Entertainment

3. Layers of the OSI model and their functions
   Ans:

Layer 1: The Physical Layer:
 1. It is the lowest layer of the OSI Model.
 2. It activates, maintains and deactivates the physical connection.
 3. It is responsible for transmission and reception of the unstructured raw data over network.
 4. Voltages and data rates needed for transmission is defined in the physical layer.

Layer 2: Data Link Layer:
 1. Data link layer synchronizes the information which is to be transmitted over the physical layer.
 2. The main function of this layer is to make sure data transfer is error free from one node to another, over the physical layer.
 3. Transmitting and receiving data frames sequentially is managed by this layer.

Layer 3: The Network Layer:
1. It routes the signal through different channels from one node to other.
2. It acts as a network controller. It manages the Subnet traffic.
3. It decides by which route data should take.

Layer 4: Transport Layer:
1. It decides if data transmission should be on parallel path or single path.
 2. Functions such as Multiplexing, Segmenting or Splitting on the data are done by this layer
3. It receives messages from the Session layer above it, convert the message into smaller units and passes it on to the Network layer.

Layer 5: The Session Layer:
   1.Session layer manages and synchronize the conversation between two different applications.
   2. Transfer of data from source to destination session layer streams of data are marked and are resynchronized properly, so that the ends of the messages are not cut prematurely and data loss is avoided.

   Layer 6: The Presentation Layer:
   1. Presentation layer takes care that the data is sent in such a way that the receiver will understand the information (data) and will be able to use the data.
   2. While receiving the data, presentation layer transforms the data to be ready for the application layer.

   Layer 7: Application Layer:
   1. It is the topmost layer.
    2. Transferring of files disturbing the results to the user is also done in this layer. Mail services, directory services, network resource etc are services provided by application layer.

4. Difference between OSI and TCP/IP model

OSI	TCP/IP
Follows vertical approach.	Follows horizontal approach.
OSI model has a separate presentation layer and session layer.	TCP/IP does not have a separate presentation layer or session layer
OSI is a reference model around which the networks are built. Generally it is used as a guidance tool	TCP/IP model is, in a way implementation of the OSI model.
OSI model has a problem of fitting the protocols into the model.	TCP/IP model does not fit any protocol.