**Q. Compare the distinct functions performed by each layer in the network model, and could you provide a detailed explanation of the roles and responsibilities associated with each layer?**

The first layer, called the Physical Layer, is all about the actual physical connection between devices. It's like the foundation of a house. This layer takes care of things like sending raw data bits over cables or wireless signals. It also deals with stuff like voltage levels and data rates.

Next up is the Data Link Layer. Think of this layer as the bridge between devices. Its main job is to make sure that data gets transferred reliably across the physical layer. It does things like error checking to ensure that the data sent and received is accurate.

Above that is the Network Layer. This layer is like the GPS of the network. It figures out the best path for data to travel from one device to another. It also handles things like addressing and routing, making sure that data gets to the right destination.

Then there's the Transport Layer. This layer is responsible for making sure that data transfer is smooth and reliable. It handles things like breaking down large messages into smaller chunks and reassembling them at the other end. It also deals with things like flow control and error correction.

Above that, we have the Session Layer. This layer sets up, manages, and terminates communication sessions between devices. It's like the organizer of the conversation, making sure that both parties are ready to talk and that the conversation ends when it's supposed to.

Next, there's the Presentation Layer. This layer takes care of things like data formatting and encryption. It makes sure that the data sent by one device can be understood by another, regardless of any differences in how they store or represent data.

Finally, there's the Application Layer. This is where all the user-facing stuff happens. It provides services directly to the end-user, like email, web browsing, or file transfer. Basically, anything you do on the internet goes through the Application Layer.

So, each layer in the network model has its own important job to make sure that communication between devices works smoothly and efficiently.