Problem #2

The five layers of the Internet protocol stack are Application, Transport, Network, Link, and Physical.

* **Application:** In this layer, application and application-layer protocols reside. Some of these protocols are HTTP, SMTP, FTP, and DNS. Packets of information are exchanged with a shared protocol between two applications at the end systems. This packet of information in the application layer is called a message.
* **Transport:** It transports application-layer messages between application endpoints. There are two transport layer protocols used in the Internet: TCP and UDP. The transport-layer packet is a segment.
* **Network:** The network-layer packets are known as datagrams. This layer provides service of delivering the segments to the transport layer in the destination host. The IP protocol, which defines the fields in the datagram as well as how the end systems and routers act on these fields, is included in this layer. Finally, this layer contains routing protocols that determine the routes that diagrams take between sources and destinations.
* **Link:** The link layer delivers network-layer datagrams to the next node (host or router) along the route. At this next node, the link layer passes the datagram up to the network layer. To move a packet from one node to he next node in the route, the network layer relies on the services of the link layer. Link-layer packets are frames.
* **Physical:** The job of the physical layer is to move the individual bits within the frame from one node to the next through the actual transmission medium of the link (for example, twisted-pair copper wire, single-mode fiber optics).