**Nicholas Shari - Worksheet 3 - 9/15/2022**

1. List five non-proprietary Internet applications and the application-layer protocols that they use.

Web -HTTP

Email send-smtp

Email receive - pop3

File transfer/Bit torrent - FTP

Remote terminal - telnet

2. For a peer-to-peer file sharing application, is there a notion of client and server side of a communication session.

Yes.

Peer sending the file is the server.

The peer receiving the file is the client.

3. What information is used by a process running on one host to identify a process running on another host?

IP address and port number associated with the process.

4. List the four broad classes of services that a transport protocol can provide. For each of the service classes, indicate if either UDP or TCP (or both) provides such a service.

Data integrity- TCP

Timing - neither

Throughput - neither

Security - neither

However, SSL provides an encrypted TCP connection which guarantees data integrity and security.

5. Compare non-persistent HTTP and persistent HTTP.

Non-persistent HTTP - at most one object is sent over TCP connection and then the connection will close. If you want to download multiple objects, multiple connections are required.

Persistent HTTP - multiple objects can be sent over a single TCP connection between the client and server before the TCP is closed.