TCP Prelab

Resources:

PC1: /etc/xinetd.d/tftp
https://en.wikipedia.org/wiki/Transport_layer
http://linux.die.net/man/7/tcp
http://linux.die.net/man/1/ttcp
http://linux.die.net/man/1/tftp
http://linux.die.net/man/1/ftp
http://linux.die.net/man/8/ifconfig

Basics (25):

1. [5] Which layer is below the transport layer?
2. [5] Which layer is above the transport layer?
3. [5] What is the name of the transport layer address? (e.g., IP addresses are the name of network layer addresses). Why do we need transport layer addresses in addition to network layer addresses?
4. [5] TCP has a mechanism called a _____ (window, door). This allows TCP to _____ (send, acknowledge) groups of packets at a time.
5. [5] TCP should be used in applications such as _____ (movie streaming, online banking) because it performs _____ (reliable, best effort) data delivery.

Theory (20):

1. [5] Is the size of the Message Segment Size (MSS) > Maximum Transmission Unit (MTU)? (True/False)
2. [5] Which layer(s) do the MSS and MTU belong to?
3. [5] How is Path Discovery related to TCP and the MTU?
4. [5] What happens when a packet size is larger than the MTU?

Technical Questions (20):

1. [5] What TCP variable will allow you to reuse a socket prior to the sockets timeout value expiring?
2. [5] What is the default time between keep-alive probes?

3. [5] What is an orphan in TCP? What happens if there are more orphans than sockets allowed?
4. [5] If your machine is overwhelmed (being sent more packets than can be acknowledged), what TCP variable would you use increase the number of packets you can accept at a time, but at the cost of increasing latency?

BE301A Lab Questions (35):

In this section you will be responsible with discovering how to accomplish the rest of the lab. For each answer, also include what commands you used on each device.

1. [10] Show (with a Wireshark screenshot) a packet containing a TCP segment, which is piggybacking an ACK.
2. [10] Transfer the file on PC1 '/usr/lib/libstd++.so.6.0.8' to PC2.
    a. How long did it take?
    b. Identify the control ports used as well as the data ports.
    c. Did you use TCP or UDP to transfer the file?
3. [15] Create a Stevens Time-Sequence graph of the TCP stream from downloading the file. What (if anything) does this graph describe? [Hint: Wireshark – TCP Stream Graph]