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Homework: /SI110/The Cyber Battlefield/Networks & Protocols 2

1. Match these service descriptions with the protocol stack layer it is associated with:

- ___ a. moves bits over wires or through radio waves, etc. (1) Application Layer 20/16/12/0
- ___ b. services for users (2) Transport Layer
- ___ c. moves packets from one host to another host. (3) Internet Layer
- ___ d. we don't know yet! (4) Link Layer
- ___ e. moves bytes from a process running on one host to a process running on another host. (5) Physical Layer

2. TCP and UDP are two different transport layer protocols. For each sentence below, circle which (or both) of the two is described:

20/16/12/0

- TCP / UDP a. Establishes a connection, then communicates via the connection.
- TCP / UDP b. Provides communication between processes (i.e., executing programs) on different hosts.
- TCP / UDP c. Is unreliable, i.e. some data may be lost in communication.

3. Using the list of service-to-ports mappings link in the lecture notes, answer the following questions:

- a. What port is used for NTP (Network Time Protocol: this service synchronizes the clocks on different hosts on a network)? Answer: 20/16/12/0
- b. Does NTP use TCP or UDP? Answer:
- c. What service runs on port 3724? Answer:

4. Putting this URL http://www.w3.org/ in your browser's address bar is the same as putting in

20/16/12/0

Answer (with explanation!):

- a. http://www.w3.org:25/
- b. http://www.w3.org:15000/
- c. http://www.w3.org:80/
- d. none of the above
- e. all of the above

5. Give the command netstat -a in a shell on your machine just to remind yourself of what the output looks like.

a. In another shell give the command nc -l -p 55555. In the first shell, give the command netstat -a again. What entry has popped up as a result of the nc command?

Proto	Local Address	Foreign Address	State
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

10/8/6/0

b. Is the nc process you just created acting as a client or as a server?

10/8/6/0