

## INTERNETWORKING II

### Chapter 10 Study Guide

Describe TCP/IP.

**Transmission Control Protocol/Internet Protocol – the suite of protocols developed as part of ARPA. Includes layers 3 and 4 specifications, as well as protocols for common applications (e.g., e-mail, file transfer, terminal emulation). Its main function is for transfer of information from one network device to another.**

List the different layers of the TCP/IP stack.

#### **Layers 7, 4, and 3**

What applications and protocols are in each layer of the TCP/IP stack?

- **Layer 7: DNS (name-to-IP resolution), WINS (name-to-NT workstation resolution), HOSTS (static mapping of IP to computer names), POP3 (incoming e-mail), SMTP (outgoing e-mail), SNMP (network management), FTP (file transfer), TFTP (file transfer), HTTP (web pages), Telnet (remote connections)**
- **Layer 4: TCP (connection oriented), UDP (connectionless)**
- **Layer 3: IP, ICMP (ping), ARP, RARP, Traceroute**

What are port numbers and how are they used?

**used to keep track of multiple conversations crossing the network at the same time.**

Describe the dynamics of the "three way handshake."

- 1. The source host sends the destination host a request for communication. This is done by sending a sequence number.**
- 2. The destination host sends back an acknowledgement of the sequence number and then adds 1 to it and sends that.**
- 3. The source host acknowledges the sequence number +1 that the destination host sent and transmission begins.**

Where would flow control problems exist in the OSI model?

#### **Layer 4, Transport**

What is the purpose of the protocol field in the IP header?

**indicates which Layer 4 protocol (TCP or UDP) is being used to send the packet.**

What are ICMPs and their purpose?

**Internet Control Message Protocol (ping) – they check for connectivity between two devices at Layer 3. ICMP sends a packet to a designated remote site and waits for an echo reply. It sends out 5 packets and responds on how many of them echoed back from the destination.**

What is ARP and what function does it perform?

**Address Resolution Protocol – resolves unknown MAC addresses to IP known addresses to allow communication on multi-access media (e.g., Ethernet).**

How does a device find a Layer 3 address on a network?

**From an RARP (Reverse Address Resolution Protocol) server.**

What is the function of a broadcast address?

**it's the address put on a packet that is to be seen by all hosts on a network/subnet.**

What is the *ip host* command used for? What is the correct syntax of the command?

**It is used to associate an IP address of a router's interface with a name.  
router (config)# ip host [name] [IP address] [IP address—if more than one interface on router]**

How do you turn off the name-to-address translation?

**use the command:  
no ip domain-lookup**

What command shows path failures from the source to destination?

**tracert**