

## ITS332 – Quiz 1 Answers

Name: \_\_\_\_\_

ID: \_\_\_\_\_ Mark: \_\_\_\_\_ (out of 6)

When explaining your answer you should refer to the commands (and options) used.

### Question 1 [1 mark]

What is the IP address associated with one LAN card in your computer? Explain how you found the answer.

#### Answer

Example (differs for each computer): 10.10.6.167

Use `ifconfig` to display the configuration of your interfaces. One LAN cards should have an IP address.

### Question 2 [2 marks]

What is the hardware address of 10.10.6.167? Explain how you found the answer.

#### Answer

Example (differs in time): 00:17:31:5A:E7:E8

Communicate with the destination, e.g.:  
`ping 10.10.6.167`

ARP should now have the corresponding hardware address of 10.10.6.167:  
`arp -n`

### Question 3 [2 marks]

Open a web browser and visit the site `www.google.co.th` (make sure you refresh the page).

- a) What is the IP address of `www.google.co.th`? Explain how you found the answer. [1 mark]

#### Answer

Use nslookup to find the IP address from DNS:

```
nslookup www.google.co.th
```

The result may show multiple IP addresses. Only one is necessary, e.g. 72.14.235.147

- b) What port number did your web browser use to connect with the Google web server?  
Explain how you found the answer.

**Answer**

Use netstat to see the TCP connections:

```
netstat -t -n
```

The Local Address should show your address and port number, while one of the Foreign Addresses should correspond to the destination. E.g. port 2180.

**Question 4** [2 marks]

Use ping to send 10 ICMP request packets, each containing 1000 bytes of data, at a speed of 2 packets per second, to the destination 10.10.6.167.

- a) Record the command used. [1.5 marks]

**Answer**

```
ping -c 10 -s 1000 -i 0.5
```

The -c option specifies the number of request packets

The -s option specifies the size of data.

The -i option specifies the interval between request packets.

- b) What is the average round trip time? [0.5 mark]

**Answer**

Example: 1.785ms (you must indicate the correct units)

**Question 5** [2 marks]

- a) How many routers are *between* your computer and the device  
bridge.siit.tu.ac.th? Explain how you found the answer. [1.5 marks]

**Answer**

Use `tracert` to determine the path:

```
tracert bridge.siiit.tu.ac.th
```

`tracert` reports the set of routers, as well as the final destination. For example, if there are 6 entries, then there are 5 routers between you and `bridge.siiit.tu.ac.th`.

- b) Using the networking tools you have learnt, can you determine the Ethernet address of `bridge.siiit.tu.ac.th`? Explain why or why not. [0.5 mark]

**Answer**

No. `bridge` is another host/router in a different IP subnet. Your IP subnet is using Ethernet, however beyond your first router (10.10.6.1), you do not know nor care what hardware (Layer 2) technologies are used. Your host only sees hardware addresses of devices on your IP subnet. (Even if you used Wireshark you would not see the hardware address). You do not even know if `bridge` uses Ethernet (or perhaps another technology).

**Question 6** [1 mark]

What is the default DNS server that your computer uses? Explain how you found the answer.

**Answer**

Example: 10.10.10.9

The file `/etc/resolv.conf` lists the default DNS servers. Alternatively, when you use `nslookup` it reports the DNS server used. Finally, you may assume the DHCP lease information records the default DNS servers.

**Question 7** [1 mark]

FTP is the File Transfer Protocol. An FTP server uses two port numbers, one for establishing a session and one for data transfer. What are the default FTP server port numbers? Explain how you found the answer.

**Answer**

20 and 21

Look in the `/etc/services` file.

**Question 8** [1 mark]

Some computers run a `quote` (or `qotd` – Quote of the Day) server. A client sending a command to a `quote` server gets a quote returned. What is the default port number of a `quote` server? Explain how you found the answer.

**Answer**

17

Look in the `/etc/services` file.

**Question 9** [1 mark]

A DHCP server may return information about an IP address (and associated lease time) for a client. What other information may be included about *other* services/servers in the DHCP response?

**Answer**

The DHCP response may also include:  
DNS servers; Netbios servers; Routers in the network.