

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 card should have an IP address.

Question 1 [1 mark]

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

Answer

Example (differs for each computer): 00:17:31:5a:e5:89

Use `ifconfig` to display the configuration of your interfaces. Each LAN card should have a HW address.

Question 2 [2 marks]

What is the hardware address of 10.10.6.110? 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 [1 mark]

What is the IP address of `www.tu.ac.th`? Explain how you found the answer. [1 mark]

Answer

Use nslookup to find the IP address from DNS:
`nslookup www.tu.ac.th`

The result may show multiple IP addresses. Only one is necessary, e.g. 203.131.222.38

Question 3 [1 mark]

What is the IP address of the router on your network? Explain how you found the answer. [1 mark]

Answer

10.10.6.1

Use route to find the set of routes. The row with a gateway (not 0.0.0.0 or *) indicates the router.

Question 4 [2 marks]

Use ping to send 5 ICMP request packets, each containing 500 bytes of data, at a speed of 1 packet every 2 seconds, to the destination 10.10.6.110.

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

Answer

```
ping -c 5 -s 500 -i 2 10.10.6.110
```

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 4 [2 marks]

Use ping to send 4 ICMP request packets, each containing 200 bytes of data, at a speed of 1 packet every 3 seconds, to the destination 10.10.6.110.

c) Record the command used. [1.5 marks]

Answer

```
ping -c 4 -s 200 -i 3 10.10.6.110
```

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.

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

Answer

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

Question 5 [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]

Kerberos is a protocol for authenticating computers. What port number does a Kerberos server use. Explain how you found the answer.

Answer

88

Look in the `/etc/services` file.

Question 8 [1 mark]

SFTP is a protocol for secure transfer of files. What is the default port number of a sftp server? Explain how you found the answer.

Answer

115

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.

Question 10 [1 mark]

A DHCP server may return information other than an IP address to a client. For example, it may send the address of different servers. What is the address of your NETBIOS server? Explain how you found the answer.

Answer

Look in the leases file: `/var/lib/dhcp3/dhclient.leases`

Example: 192.168.1.6,10.10.1.5

Question 11 [2 marks]

DNSAdvantage is a company that provides free access to their DNS servers. If you wanted your computer to use DNSAdvantage's DNS server (at 156.154.70.1) instead of SIIT's DNS server, what would you do? (Give specific instructions, such as the text to add, files to edit, commands to run)

Answer

Edit the file /etc/resolv.conf
Remove the line referring to SIIT's server
Add the line "nameserver 156.154.70.1"

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Answer

Edit the file /etc/resolv.conf
Remove the line referring to SIIT's server
Add the line "nameserver 156.154.70.1"

Question 12 [2 marks]

Use ping to send 5 ICMP request packets to 10.10.6.110 and so that every reply packet is 250 bytes (excluding IP header).

e) Record the command used. [1.5 marks]

Answer

```
ping -c 5 -s 242 10.10.6.110
```

The -c option specifies the number of request packets
The -s option specifies the size of data. Note that 8 bytes of extra header are included in the reply.

f) What is the total time that ping runs? [0.5 mark]

Answer

Example: 4000ms (you must indicate the correct units)

Question 13 [1 mark]

Explain the difference between the “renew” and “rebind” times of a DHCP lease.

Answer

Renew is the time before which the client should contact the DHCP server that it obtained the lease from if it wants to renew the lease. Rebind is the time before which the client should contact *any* DHCP server to rebind the lease.

Question 14 [2 marks]

You have your own network of 2 Linux computers with IP addresses 10.10.1.1 and 10.10.1.2. Assuming you cannot obtain a domain or access/modify DNS servers, what would you do on each computer so that you can refer to them by names. E.g. so that “ping computer1” would send a ping from computer2 (10.10.1.2) to 10.10.1.1. (Give specific instructions, such as the text to add, files to edit, commands to run)

Answer

Edit /etc/hosts and add the entries
10.10.6.1 computer1
10.10.6.2 computer2

Question 15 [2 marks]

If you know your network has only one default router, but you don't know its IP address, explain how you would discover you default routers hardware address. Give any commands you would use in the explanation.

Answer

route
This will list the routing table entries, one of which will give a gateway address (assuming you have only 1 router)
ping router_address
where router_address is the IP address discovered from the route command. This will send message to the router.
arp
Lists the hardware address for the devices you have recently communicated with (e.g. the router from the ping)

Question 16 [1 mark]

The lab PCs have IPv6 addresses, as well as the commonly used IPv4, or simply IP addresses. What is your IPv6 address (and what command(s) did you use to find it)?

Answer

ifconfig

The inet6 field gives the IPv6 address, e.g.: fe80::217:31ff:fe5a:e589/64

Question 17 [1 mark]

What command(s) would you use to find the total number of bytes transmitted by your Ethernet LAN card?

Answer

ifconfig

The Tx Bytes field gives the answer.