**L11-Introduction to Computer Networking**

**Homework 5 Answers**

**Due Date: Jan.9, 2017 by 23:59PM on Google Drive**

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**Problem1 (50pts):**

**Answer the following question about the IP address**

1. **Write the IP address 129.17.129.97 in its binary form**

10000001.00010001.10000001.01100001

**② Consider an IP subnet with prefix 129.17.129.97/27. Provide the range of IP addresses (of form yyy.yyy.yyy.yyy to zzz.zzz.zzz.zzz) that can be assigned to this subnet**

129.17.129.97 to 129.17.129.126

**課題2. (25pts, 5pts for each)**

**Using the command “ifconfig” to list up the names of all the active network interface on your terminal**

Active network interface:

lo0, gif0, stf0, en0, en1, en2, en3, p2p0, bridge0

**Explain the result of command “ifconfig | grep mtu”**

Result:

: ifconfig | grep mtu

lo0: flags=8049<UP,LOOPBACK,RUNNING,MULTICAST> mtu 16384

gif0: flags=8010<POINTOPOINT,MULTICAST> mtu 1280

stf0: flags=0<> mtu 1280

en0: flags=8863<UP,BROADCAST,SMART,RUNNING,SIMPLEX,MULTICAST> mtu 1500

en1: flags=8863<UP,BROADCAST,SMART,RUNNING,SIMPLEX,MULTICAST> mtu 1500

en2: flags=8963<UP,BROADCAST,SMART,RUNNING,PROMISC,SIMPLEX,MULTICAST> mtu 1500

en3: flags=8963<UP,BROADCAST,SMART,RUNNING,PROMISC,SIMPLEX,MULTICAST> mtu 1500

p2p0: flags=8843<UP,BROADCAST,RUNNING,SIMPLEX,MULTICAST> mtu 2304

bridge0: flags=8863<UP,BROADCAST,SMART,RUNNING,SIMPLEX,MULTICAST> mtu 1500

Explain:

This command display MTU (Maximum Transmission Unit) of each interface.

**Explain the result of command “ifconfig | grep inet”**

Result:

: ifconfig | grep inet

inet6 ::1 prefixlen 128

inet 127.0.0.1 netmask 0xff000000

inet6 fe80::1%lo0 prefixlen 64 scopeid 0x1

inet 163.143.15.69 netmask 0xffffff00 broadcast 163.143.15.255

inet6 fe80::e4d:e9ff:feb8:39d4%en0 prefixlen 64 scopeid 0x4

Explain:

This command display IP address of each interface.

**Show and explain the result of command “ifconfig | grep status”**

Result:

: ifconfig | grep status

status: active

status: inactive

status: inactive

status: inactive

status: inactive

status: inactive

Explain:

This command display each interface is in operation or not.

**Show and explain the result of command “ifconfig | grep ether”**

Result:

: ifconfig |grep ether

ether 0c:4d:e9:b8:39:d4

media: autoselect (1000baseT <full-duplex,energy-efficient-ethernet>)

ether 88:63:df:9b:b5:eb

ether 32:00:1f:ea:60:00

ether 32:00:1f:ea:60:01

ether 0a:63:df:9b:b5:eb

ether 0e:4d:e9:8b:47:00

Explain:

This command displays MAC address of each interface.

**課題3. (25pts)**

**一枚のNICに、２個以上のIPアドレスを設定してみてください。**

**設定プロセスを記述してください。（適当にスクリンショート利用することを勧め）**

**Command:** sudo ifconfig en0 alias 129.17.129.98 netmask 0xffffff00

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