

1. (2 pts) One common problem of designing and developing a system with multiple parts that act concurrently (e.g. several things happening at once) is that deadlocks may occur. A deadlock is a situation where:
- a) the final result depends on whether A or B goes last
  - b) A is Big-Endian while B is Little-Endian
  - c) A is waiting for B while B is waiting for A
  - d) A gets selected to run more often, not allowing B to run

Answer: \_\_\_\_\_

2. (2 pts) Another big problem of designing and developing a system with multiple parts that act concurrently is that a race condition may occur. A race condition is a situation where:
- a) the final result depends on whether A or B goes last
  - b) A is Big-Endian while B is Little-Endian
  - c) A is waiting for B while B is waiting for A
  - d) A gets selected to run more often, not allowing B to run

Answer: \_\_\_\_\_

3. (5 pts) Match the following tools/commands with the description of their purpose (you can draw lines and/or match the number with the letter).

- |             |  |
|-------------|--|
| 1) ps       | a) configure a network interface   |
| 2) nslookup | b) send a signal to a process  |
| 3) ifconfig | c) query internet name servers   |
| 4) netstat  | d) report a snapshot of the current processes                            |
| 5) kill     | e) print network connections, routing tables, interface statistics, etc. |

4. 8 pts) The ifconfig command when run on the nisl machine produces the following output:

```
[dharter@nisl ~]$ /sbin/ifconfig
eth0      Link encap:Ethernet  HWaddr 00:07:E9:D6:57:AC
          inet addr:10.19.0.115  Bcast:10.19.3.255  Mask:255.255.252.0
          inet6 addr: fe80::207:e9ff:fed6:57ac/64 Scope:Link
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:17979663 errors:0 dropped:0 overruns:0 frame:0
          TX packets:16965379 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:3392152068 (3.1 GiB)  TX bytes:745624567 (711.0 MiB)

eth1      Link encap:Ethernet  HWaddr 00:0F:B5:07:F0:6E
          inet addr:192.168.0.1  Bcast:192.168.0.255  Mask:255.255.255.0
          inet6 addr: fe80::20f:b5ff:fe07:f06e/64 Scope:Link
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:56756318 errors:0 dropped:99 overruns:6 frame:0
          TX packets:54204702 errors:17 dropped:0 overruns:17 carrier:17
          collisions:0 txqueuelen:1000
          RX bytes:1673874774 (1.5 GiB)  TX bytes:612424422 (584.0 MiB)
          Interrupt:217 Base address:0x8000

lo        Link encap:Local Loopback
          inet addr:127.0.0.1  Mask:255.0.0.0
          inet6 addr: ::1/128 Scope:Host
          UP LOOPBACK RUNNING  MTU:16436  Metric:1
          RX packets:13643983 errors:0 dropped:0 overruns:0 frame:0
          TX packets:13643983 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:0
          RX bytes:185683375 (177.0 MiB)  TX bytes:185683375 (177.0 MiB)
```

Answer the following questions about this output:

- eth0 is a \_\_\_\_\_
- All machines running an internet protocol stack will have a loopback address: True False
- The ip address for eth1 is: \_\_\_\_\_
- The MAC address for eth0 is: \_\_\_\_\_

5. (4 pts) (circle the correct information for both parts)

An IPv4 address consists of [ 1 2 4 8 ] [ 8-bit 16-bit 32-bit 64-bit ] numbers