Signature _____ **Name**_____

cs30x____

Student ID _____ **Score:**

Quiz 2
CSE 30
Fall 2004

#1. a) Write the SPARC assembly instructions to define the following **global** variables in the **data** segment:

```
char ModestMouse[] = "Ocean Breathes Salty";
float boat = -4.20;
```

#2. What is the value (**in hex**) of %o1 after each set of instructions:

a)
```
set  0x CA2475FE, %o1
set  0x D4A9D4A9, %o2
btog %o2, %o1
```

Value in %o1 at this point is **0x**_____

b)
```
set  0x CA2475FE, %o1
sra  %o1, 8, %o1
```

Value in %o1 at this point is **0x**_____

c)
```
set  0x CA2475FE, %o1
set  0x D4A9D4A9, %o2
or   %o1, %o2, %o1
```

Value in %o1 at this point is **0x**_____

#3. List two reasons why you would need to allocate local variable space on the stack as opposed to mapping a local variable to local registers in the SPARC architecture.

(over)

#4. Write the equivalent **unoptimized** SPARC assembly language instructions to perform the following C code fragment. **Use the loop construct specified in class/Notes.**

C	**SPARC assembly**
`for ( i = 4920; i > 420; --i ) {`	`/* i is mapped to %l1 */`
`  x = i - x;`	`/* x is mapped to %l3 */`
`}`	

#5. Write the equivalent **unoptimized** SPARC assembly language instructions to perform the following C code fragment.

C	**SPARC assembly**
`x = x % 5555;`	`/* x is mapped to %l3 */`

Now optimize your answer to eliminate any delay slots:

Optimized version of above SPARC assembly