Signature _____ **Name:**

cs30x____

Student ID _____ **Score:**

Quiz 2
CSE 30
Spring 2003

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

```
char alive[] = "P.O.D.";
short sd = -404;
double df = 42.1;
```

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

a)
```
set  0xCAFEBABE, %o1
sll  %o1, 20, %o1
```

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

b)
```
set  0xCAFEBABE, %o1
sra  %o1, 8, %o1
```

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

c)
```
set  0xCAFEBABE, %o1
set  0xB9B9B9B9, %o2
or   %o1, %o2, %o1
```

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

d)
```
set  0xCAFEBABE, %o1
set  0xB9B9B9B9, %o2
btog %o2, %o1
```

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

(over)

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

C

```
x = 6528;

if ( x <= 59 ) {
   x = x % 15;
}
x = x - 8;
```

SPARC assembly

```
/* x is mapped to %l7 */
```

Now optimize your answer to eliminate any delay slots:

Optimized version of above SPARC assembly