

Signature _____

Name _____

cs30x _____

Student ID _____

Score: _____

Quiz 2
CSE 30
Winter 2007

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

```
char CSI[] = "Las Vegas";  
double delight = 4.11;
```

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

a) set 0xDEADBEEF, %o1
 sra %o1, 16, %o1

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

b) set 0xDEADBEEF, %o1
 set 0x6B6B6B6B, %o2
 xor %o1, %o2, %o1

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

c) set 0xDEADBEEF, %o1
 set 0x6B6B6B6B, %o2
 and %o1, %o2, %o1

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

#3. Assume you run gdb on pal.

State how to set a breakpoint at the entry point in displayDiamond():

Assume you correctly set this breakpoint and performed a run with correct command line arguments.

State how to print the value of the 3rd argument passed to displayDiamond():

(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

```
for ( a = 4; a < 29; ++a )
{
    x = 5678 + a;
}
```

SPARC assembly

```
/* x is mapped to %10 */
/* a is mapped to %11 */
```

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

C

```
x = x % 8309;
```

SPARC assembly

```
/* x is mapped to %12 */
```

Now optimize your answer to eliminate any delay slots:

Optimized version of above SPARC assembly