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Name _____

cs30x _____

Student ID _____

Score: _____

Quiz 2
CSE 30
Fall 2007

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

```
char Heroes[] = "Hiro";  
float air = 91.1;
```

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

a) set 0x9863131B, %o1
 sra %o1, 12, %o1

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

b) set 0x9863131B, %o1
 set 0x5A5A5A5A, %o2
 xor %o1, %o2, %o1

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

c) set 0x9863131B, %o1
 set 0x5A5A5A5A, %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 displaySquare():

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

State how to print the value of the 2nd argument passed to displaySquare() in gdb:

(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 ( x = 8765; x >= 723; --x )
{
    a = x - 321;
}
```

SPARC assembly

```
/* x is mapped to %12 */
/* a is mapped to %14 */
```

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

C

```
x = x % 7531;
```

SPARC assembly

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

5b. Now optimize your answer to eliminate any delay slots:

Optimized version of above SPARC assembly