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Name _____

cs30x _____

Student ID _____

Score: _____

Quiz 2
CSE 30
Spring 2005

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

```
char MarsVolta[] = "The Widow";  
double mirror = 420.024;
```

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

a) set 0xFACEBABE, %o1
 sll %o1, 20, %o1

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

b) set 0xFACEBABE, %o1
 sra %o1, 8, %o1

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

c) set 0xFACEBABE, %o1
 set 0xDCDCDCDC, %o2
 and %o1, %o2, %o1

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

#3. Write the `save` SPARC instruction to allocate 3 shorts as local variables on the stack.

```
save  %sp, _____, %sp
```

#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
<pre>x = 6789;</pre>	<pre>/* x is mapped to %12 */</pre>
<pre>while (x >= 195) {</pre>	<pre>/* a is mapped to %16 */</pre>
<pre> a = x - 127;</pre>	
<pre> --x;</pre>	
<pre>}</pre>	

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

C	SPARC assembly
<pre>x = x / 4420;</pre>	<pre>/* x is mapped to %12 */</pre>

Now optimize your answer to eliminate any delay slots:

Optimized version of above SPARC assembly