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cs30x _____

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Quiz 2
CSE 30
Fall 2005

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

```
char GreenDay[] = "Jesus of Suburbia";  
double earthday = 4.22;
```

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

a) set 0x867F5309, %o1
 sra %o1, 12, %o1

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

b) set 0x867F5309, %o1
 set 0xB5B5B5B5, %o2
 xor %o1, %o2, %o1

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

c) set 0x867F5309, %o1
 set 0xB5B5B5B5, %o2
 and %o1, %o2, %o1

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

#3. List two reasons why a local variable cannot be mapped to a local register and must be allocated on the runtime stack in the SPARC architecture.

1)

2)

(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 = 5678; i > 317; --i) {	/* i is mapped to %13 */
x = i + 123;	/* x is mapped to %15 */
}	

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

C	SPARC assembly
x = x % 7777;	/* x is mapped to %15 */

Now optimize your answer to eliminate any delay slots:

Optimized version of above SPARC assembly