

Signature _____

Name _____

cs30x _____

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Score: _____

Quiz 2
CSE 30
Spring 2006

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

```
char Pizza[] = "Gourmet Veggie";  
double dip = 42.02;
```

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

a)

```
set 0xBADAFACE, %o1  
set 0xACACACAC, %o2  
xor %o1, %o2, %o1
```

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

b)

```
set 0xBADAFACE, %o1  
sra %o1, 12, %o1
```

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

c)

```
set 0xBADAFACE, %o1  
set 0xACACACAC, %o2  
and %o1, %o2, %o1
```

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

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

```
save %sp, _____, %sp
```

(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
<pre>x = -8256;</pre>	<pre>/* x is mapped to %15 */</pre>
<pre>while (x < 915) {</pre>	<pre>/* a is mapped to %17 */</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 * 4902;</pre>	<pre>/* x is mapped to %12 */</pre>

Now optimize your answer to eliminate any delay slots:

Optimized version of above SPARC assembly