Quiz 2  
CSE 30  
Winter 2003

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

char *str = "Super Bowl";
long ld = -411;
double df = 4.21;

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

a) set 0xBABEFACE, %o1
   sll %o1, 16, %o1
   Value in %o1 at this point is 0x______________________________

b) set 0xBABEFACE, %o1
    sra %o1, 8, %o1
    Value in %o1 at this point is 0x______________________________

c) set 0xBABEFACE, %o1
    set 0xA6A6A6A6, %o2
    or %o1, %o2, %o1
    Value in %o1 at this point is 0x______________________________

d) set 0xBABEFACE, %o1
    set 0xA6A6A6A6, %o2
    btog %o2, %o1
    Value in %o1 at this point is 0x______________________________

(over)
#3. Write the equivalent unoptimized SPARC assembly language instructions to perform the following C code fragment.

C
```c
for ( a = 5937; a >= -14; --a ) {
    x = a + 55 - 22;
}
a = x;
```

SPARC assembly
```assembly
/* a is mapped to %13 */
for ( a = 5937; a >= -14; --a ) {
    x = a + 55 - 22;
/* x is mapped to %16 */
}
a = x;
```

Now optimize your answer to eliminate any delay slots:

Optimized version of above SPARC assembly