Signature _____ **Name:**

cs30x____

Student ID _____ **Score:**

Quiz 3
CSE 30
Winter 2004

#1.

a) Write the appropriate **save** instruction to allocate stack space for the following local variables and any padding.

```
unsigned short a;
char           b;
int            c;
char           d;
short          e;
int            f;

save  _________ , ____________________________  ,  _________
```

(Use the formula, not an absolute value)

b) Write the appropriate unoptimized SPARC assembly instructions using the above local variables.

```
c = 8675309;
```

```
a = 0xBABE;
```

```
d = f;
```

```
e = b;
```

(OVER)

#2.
a) Write the appropriate **save** instruction to allocate stack space for the following local variable declaration.

```
short a[8];

save  _________ , ____________________________  , _________
                  (Use the formula, not an absolute value)
```

b) Write the appropriate instructions to perform the following assignment statements.

```
a[1] = a[3];

_____________________________

_____________________________

a[2] = a[5];

_____________________________

_____________________________

short *ptr;                    /* ptr mapped to %l3 */

ptr = &a[0];

_____________________________

ptr++;                         /* ptr mapped to %l3 */

_____________________________

short x = *ptr;                /* x mapped to %l0; ptr to %l3 */

_____________________________

*ptr = x;                      /* x mapped to %l0; ptr to %l3 */

_____________________________
```

#3. Explain why traversal pointers used to access each element of a multidimensional array/vector are more efficient than equivalent nested loops using standard array notation like a[i][j].