

Signature \_\_\_\_\_

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cs30x \_\_\_\_\_

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Score: \_\_\_\_\_

**Quiz 3**  
**CSE 30**  
**Fall 2006**

**#1.**  
**a)** Write the appropriate **save** instruction to allocate stack space for the following local variables and any padding.

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

save \_\_\_\_\_ , \_\_\_\_\_ , \_\_\_\_\_  
(Use the formula, not an absolute value)

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

b = d;

---

a = 0xCAFE;

---

f = -8675309;

---

c = e;

(OVER)

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

```
short a[5];
```

```
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[4];
```

```
_____  
_____
```

```
short *ptr; /* ptr mapped to %12 */
```

```
ptr = &a[0];
```

```
_____  
_____
```

```
ptr++; /* ptr mapped to %12 */
```

```
_____  
_____
```

```
short x = *ptr; /* x mapped to %10; ptr to %12 */
```

```
_____  
_____
```

```
*ptr = x; /* x mapped to %10; ptr to %12 */
```

```
_____  
_____
```

**#3.** Write the equivalent expression the C compiler really uses for an array name.

```
double a[10];
```

```
a is equivalent to _____.
```