

Name:
cs30x _____
Score:

Quiz 3
CSE 30
Winter 2001

#1.

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

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

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

b) Write the appropriate instructions to store the value 'A' in local variable **a** as defined above (hint: you cannot assign an immediate constant value directly to memory — you can only store from a register to memory).

```
_____ ! 'A' -> %10 ('A' = 0x41/0101/65)  
_____ ! %10 -> local variable a
```

c) Write the appropriate instructions to store the value **0x4321** in local variable **d** as defined above (same hint as above).

```
_____ ! 0x4321 -> %10  
_____ ! %10 -> local variable d
```

d) Write the appropriate instruction to place the value in local variable **e** into register **%10**.

```
_____ ! e -> %10
```

e) Write the appropriate instruction to place the value in local variable **b** into register **%10**.

```
_____ ! b -> %10
```

(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, assuming variable **i** is mapped to **%10** and **ptr** is mapped to **%11**.

```
short i; /* i mapped to %10 */
```

```
i = a[3];
```

```
_____ ! a[3] -> %10
```

```
a[2] = i;
```

```
_____ ! %10 -> a[2]
```

```
short *ptr; /* ptr mapped to %11 */
```

```
ptr = &a[1];
```

```
_____ ! &a[1] -> %11
```

```
++ptr; /* ptr mapped to %11 */
```

```
_____ ! ++ptr
```

```
*ptr = i; /* i mapped to %10; ptr to %11 */
```

```
_____ ! %10 -> *ptr
```

```
i = *ptr; /* i mapped to %10; ptr to %11 */
```

```
_____ ! *ptr -> %10
```