

Name:
cs30x _____
Score:

Quiz 3
CSE 30
Fall 2000

#1.

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

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

```
save _____ , _____ , _____
```

b) Write the appropriate instructions to store the value `'\n'` 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).

```
_____ ! '\n' -> %10  
_____ ! %10 -> local variable a
```

c) Write the appropriate instructions to store the value **0x87654321** in local variable **b** as defined above (same hint as above).

```
_____ ! 0x87654321 -> %10  
_____ ! %10 -> local variable b
```

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

```
_____ ! c -> %10
```

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

```
_____ ! a -> %10
```

(OVER)

#2.

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

```
short a[8];
```

```
save _____ , _____ , _____
```

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[2];
```

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

```
i = a[5];
```

```
_____ ! a[5] -> %10
```

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

```
ptr = a;
```

```
_____ ! a -> %11
```

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

```
_____ ! ++ptr
```

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

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

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

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