COE 205 : Computer Organization & Assembly Language
Quiz 2 – Monday, October 18, 2004

Name:

ID:

Q1. **(6 pts)** Suppose that the following data segment is allocated in the segment given in the *DS* register. Show the content of the memory allocated, in hexadecimal, and the offsets of variables *J*, *K*, and *L*, assuming that variable *I* is at offset 0. Note that the ASCII code of character 'A' is 41H and that of '$' is 24H.

```
.DATA
I    DB    12, -12, 'BD'
J    DW    126, 1AH
K    DW    OFFSET J + 10
     DD    17
L    DB    4, 6 DUP ('$')
```

Logical Address (Hex)	Variable	Content (Hex)
DS:0000	I	0C
0001		F4
0002		42
0003		44
0004	J	7E
0005		00
0006		1A
0007		00
0008	K	0E
0009		00
000A		11
000B		00
000C		00
000D		00
000E	L	04
000F		24
0010		24
0011		24
0012		24
0013		24
0014		24

Q2. **(8 pts)** Assume the following initial state of the Pentium registers *EAX* and *EBX*:

```
EAX = 1088CFH and EBX = 3F8872H
```

i. **(1 pt)** Show the content of ECX after executing:

```
movsx ECX, AX
```

ii. **(1 pt)** Show the content of ECX after executing:

```
movzx ECX, AX
```

iii. **(2 pts)** Show the content of the six status flags (O, C, S, Z, A, and P) after executing:

```
cmp BX, AX
```

iv. **(1 pt)** Show the content of EAX after executing:

```
bswap EAX
```

v. **(3 pts)** Show the content of BX and the six status flags after executing:

```
add BX, BX
```

Q3. **(6 pts)** Write a program to ask the user to enter a character in upper case and on the next line print the character in both upper and lower case. Recall that the ASCII codes of 'A' and 'a' are 41H and 61H respectively.