CS 60B Midterm #2 — October 19, 1992

Your name _____

login c60b–_____

Discussion section number _____

TA's name _____

This exam is worth 12 points, or 12% of your total course grade. The exam contains four substantive questions, plus the following:

Question 0 (1 point): Fill out this front page correctly and put your name and login correctly at the top of each of the following pages.

This booklet contains three numbered pages including the cover page. Put all answers on these pages, please; don't hand in stray pieces of paper. This is an open book exam.

When writing procedures, write straightforward code. Do not try to make your program slightly more efficient at the cost of making it impossible to read and understand.

When writing procedures, don't put in error checks. Assume that you will be given arguments of the correct type.

Our expectation is that many of you will not complete one or two of these questions. If you find one question especially difficult, leave it for later; start with the ones you find easier.

0	/1
1	/2
2	/2
3	/2
4	/5
total	/12

Question 1 (2 points):

Convert the decimal number -3200 into 16-bit (halfword) binary and hexadecimal representations.

Question 2 (2 points):

Convert the 16-bit hexadecimal number `0x024f` into binary and decimal representations.

Question 3 (2 points):

What does this program print?

```
main() {
    int i;

    for (i=0; i<10; i++) {
        int j = 3;
        static int k = 4;

        j += 2;
        k += 2;
        if (i==9) printf("%d %d",j,k);
    }
}
```

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Question 4 (5 points):

Write a MIPS assembler procedure equivalent to the following C procedure:

```
int pascal(int row, int col)
{
    if (col == 0) return 1;
    if (col == row) return 1;
    return pascal(row-1, col-1) + pascal(row-1, col);
}
```

You should assume that when your procedure is entered, register 4 contains the value of `row` and register 5 contains the value of `col`.