**COMP 2130, Fall 2012**

**Quiz 3, October 26, 2012**

Student Name: Student Number:

1. (6 marks) What will the following code print?

int x[10] = {2, 3, 4, 5, 6, 7, 8, 9, 10, 11};

int \*p;

int y;

p = x;

y = x[5];

printf(“%d, %d, %d\n”, x[2], p[3], y);

printf(“%d, %d\n”, \*(x+4), \*(p+8));

x = &x[1];

printf(“%d, %d\n”, \*(x+4), \*(p+6));

1. For the following user defined data type,

struct Node {

 int data;

 struct Node \*prev, \*next;

}

1. (4 marks) Write a function that

allocates the memory space for **Node**,

reads an integer from the user and saves the integer into the memory space,

initializes **prev** and **next** with **NULL**, and

returns the reference of the memory space.

1. (2 marks) Write a function that has a parameter of **struct Node**, and prints the integer value in the parameter.
2. (6 marks) Assume the following values are stored at the indicated memory address and registers.

Address Value Register Value

0x200 0xFA %ebx 0x204

0x204 0x8C %ecx 0x5

0x208 0x204 %edx 0x10

0x20C 0x200 %ebp 0x200

Fill the following table showing the values for the indicated operands:

 Operand Value

 %ecx

 (%ebx)

 4(%ebp)

Fill the following table showing the values for the instructions:

 Instruction Value in

 movl (%ebp), %eax %eax

 movl 12(%ebp), %edx %edx

 movl (%ebx), %ecx %ecx