## **Sample Midterm**

These are sample questions that are very similar to the ones I will ask on the midterm.

1. Which of the following is *not* a valid C variable name?

- (a) hello
- (b) chomp\_burp
- (c) whilex
- (d) more-more-more
- (e) TrUcKiNg
- 2. Evaluate the following expressions, assuming a = 1, b = -3, and c = 0. Treat them independently, so (for example) after evaluating (b), use the above values for (c).

```
(a) a + b < c</li>
(b) c == !a == c
(c) a = ++b; give the values of both a and b as well
(d) a-- == !b; give the value of a as well
(e) a / b
```

- 3. True or False: If x = -1, then if (x) printf("1"); else printf("2"); prints 2.
- 4. Write a recursive function to add the integers from *a* to *b*. Please assume that  $a \le b$ .
- 5. What are all possible outputs of the following code fragment?

```
void f(int a, int b)
{
    printf("%d %d\n", a, b);
}
void main(void)
{
    int i = 5;
    f(i++, i++);
}
```

## 6. Given the definitions

int numbs[10];
int \*ptr = numbs;

which of the following are equivalent, and why?

```
(a) numbs[3]
(b) numbs + 3
(c) *(numbs + 3)
(d) *(ptr + 3)
(e) *ptr + 3
```

7. Use the following code fragment to answer parts (a), (b), and (c):

for(x = i = 0; i <= 100; i += 2, x += i);</pre>

- (a) In one short sentence, what does this **for** loop do?
- (b) Is the following **while** loop equivalent? If not, how does its result differ? (*Hint*: look at the values of both x and i.)

x = i = 0; while( i++ <= 100) x += ++i;

(c) Does the following **for** loop do the same thing? If not, what does it do?

```
for(x = i = 0; i <= 100; i++){
    if (!(i % 2))
        continue;
    x = x + i;</pre>
```

8. What does this function do?

}

```
char *x(char *s, char c)
{
    char *r = NULL;
    do{
        while(*s && *s != c)
            s++;
        if (*s)
            r = s;
        } while(*s++);
        return(r);
}
```

9. The following segment of code is supposed to print the number of times the routine a\_again is called. Yet, regardless of the input, it prints 0. Why? How would you fix it?