Name:
NetID:

You have 10 minutes to complete this quiz. You may not use a computer to answer the questions.

1. What is an infinite loop?

   [**Ans**] An infinite loop is one that causes a set of instructions or statements to be repeated endlessly as the stopping condition for the loop is never met.

2. State whether the following assertions are true or false:

   (a) Every `if`-statement must have an `else`-block.

   [**Ans**] False

   (b) Every `if`-statement must terminate with the `end` keyword

   [**Ans**] True

3. Consider the following code fragments:

```
x = input('Enter a number:  ');
if ((x > 0) & (x < 5))
   fprintf('foo\n');
else
   fprintf('bar\n');
end



            Fragment 1
```

```
x = input('Enter a number:  ');
if (x > 0)
    if (x < 5)
        fprintf('foo\n');
    else
        fprintf('bar\n');
    end
end


            Fragment 2
```

Assuming the user enters a number when prompted,

(a) for what range of values of x does fragment 1 print 'bar'?

[**Ans**] Either $x \leq 0$ or $x \geq 5$. Common mistakes on this problem included:

- Using $<$ and $>$, instead of $\leq$ and *geq*.
- Stating the answer as $x \leq 0$ ***and*** $x \geq 5$ rather than or. Note that *no* number satisfies the conditions that it be less than 0 and yet greater than 5.

(b) for what range of values of x does fragment 2 print 'bar'?

[**Ans**] $x \geq 5$

4. What is printed to the screen when we run the following code fragment?

```
x = 1;
y = 1;
while ((x < 5) & (y < 10))
    fprintf('%d\n', x + y);
    x = x + 3;
    y = y + 1;
end
fprintf('%d\n' x + y);
```

[**Ans**] The numbers 2, 6 and 10 are printed to the screen. This question troubled most people in the class — the most common mistake was simply giving a single number (usually 2 or 6) as the answer. Trace through the code carefully and in a systematic fashion — draw boxes for each variable, and update them as you step through the lines of code. How many times is the loop body executed? How many `fprintf` statements are executed?