CSCI 182 Fall 2017, Test 2
Monday, October 16, 2017

Directions: Please read carefully and answer each problem on the test. They may be printed on both sides of the page. You may use **the Processing program**, **Processing reference**, anything on our CSCI 182 course webpage, your notes, and the textbook. You cannot earn credit for the Write Code problem(s) without submitting a completed paper test. You can earn up to 100 points.

True/False: Circle either T for True or F for False, on each problem. If everything stated in the problem is completely true, circle T. If anything stated in the problem is false, circle F. (6 problems. 5 points each. 30 points total.)

T F The numeric type that can hold the largest number (decimal or integer) is `long`.

T F The Processing text editor is an example of an event-driving program.

T F Other than the assignment operator, the operator with the lowest precedence is the logical OR operator, written like this: `||`

T F Function parameters are local within that function definition's body.

T F Every Processing animation requires a definition of `void draw()`.

T F Both the `ellipse()` and `rect()` functions can ***only*** be called with four arguments.

Multiple Choice: Circle the single best answer to each problem.
(3 problems. 5 points each. 15 points total.)

1) Suppose the `gcd` function is defined once (*and only once*) with the following signature.

```
int gcd(int a, int b) ;
```

Which of the following are legal calls of `gcd`.

a) `gcd(200, 300.0)`
b) `gcd(30/5, 10146788)`
c) `gcd(20, 32, 4)`
d) none of the above

```
int a;
void foo(int b) {
   int c;
}

void setup() {
   int d;
}
```

2) In the Processing code above, which variable has local scope within the `foo` function?

a) `a`
b) `b`
c) `c`
d) `d`
e) at least two of the variables above are local within `foo`

```
int i, j;
for(i = 0; i < 9; i = i + 2) {
     for(j = 0; j < 9; j++) {
          point(i, j);
     }
}
```

3) A function that returns a number between 1 and 10 would have the return type

a) `void`
b) `char`
c) `int`
d) `float`

Fill In The Blank: Write in each blank to make the statements true. Answers are case-sensitive. (4 blanks. 5 points per blank. 20 points total.)

_____ is a boolean expression with a 70% chance of being true, and a 30% chance of being false. So, on average it's true 7 out of 10 times. (PS: Use `random()`.)

_____ will return a random integer, evenly distributed, between 1980 and 2017.

```
int fc ;

void startup() {
   fc = 0 ;
}

void draw() {
   background(50, 50, 75);
   if(fc%100 >= 25) {
      ellipse(10, 10, 20, 20);
   }
   fc++ ;
}
```

In the Processing code above, the ellipse will be visible what percent of the time? Write your answer on this blank, as a percentage. _____%

When your program is in the color mode `colorMode(HSB, 360, 360, 360);` what fill color would show up as a bright, colorful, vivid shade of red? Write the color components in the blank below.

```
fill(_____, 360, 360);
```

Write an appropriate header for the following one-line function, with a parameter `n`, in the blank line:

```
_____ {
   return (int)sqrt(n) ;
}
```

Write Code: You may use a lab computer or your own laptop. Save your answer(s) in a single `.pde` file, then upload that `.pde` file to the course moodle page. As a reminder, you may use the Processing program, anything on our CSCI 182 course moodle, your notes, and the textbook. (1 problem. 25 points.)

Write an animation that transforms the interior of a filled circle from black to white **exactly once**.

The start is on the left and the finish is on the right.



