CSCI 182 Fall 2017, Test 1
Monday, September 18, 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 An initially false conditional on a `while` loop, `for` loop, or a `do-while` loop means the loop will not run its loop body at all.

T F Other than the assignment operator, the operator with the lowest precedence is the logical AND operator, written like this: &&

T F Rearranging the order of the three corners of a triangle doesn't change how the triangle looks.

```
int j;
int i = 0 ;
for(j = 182; j > 0; j -= 20) { ++i ; }
```

T F When the loop written above terminates, `i` has the value `9`.

T F In an `if` statement with several "`else if`" cases, each case whose conditional is true will have its body executed.

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

1) In the first step of compilation, the Processing compiler turns Processing Source Code into
   a) Processing Source Code
   b) Java Source Code
   c) Java Byte Code
   d) Machine Code

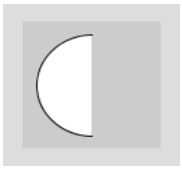
2) Which type of loop statement always executes at least once?
   a) `for` loop
   b) `while` loop
   c) `do-while` loop

```
int i, j;
for(i = 0; i < 9; i++) {
     for(j = 0; j < 10; j++) {
          point(i, j);
     }
}
```

3) How many pixels in a default sized display window (100 by 100) are visibly colored black by the pair of nested loops shown above?
   a) 0
   b) 1
   c) 9
   d) 10
   e) 81
   f) 90
   g) 99
   h) 100

Fill In The Blank: Write in each blank to make the statements true. Answers are case-sensitive. (5 blanks. 6 points per blank. 30 points total.)

Let's say you want to use an arc to display the left side a circle. The start angle you would use is _____, and the stop angle you would use is _____. As an illustration, the desired display window is shown below.



When you're in the color mode `colorMode(HSB, 100, 100, 100)`; what fill color would show up as a bright, colorful, vivid shade of red? Write the color components in the blank below.

```
fill(_________________, 100, 100);
```

Write one variable type other than `int` in the blank below, to complete the code so that the assignment from q to z is allowed by implicit type conversion.

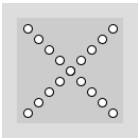
```
int q = 75;
_____________ z = q;
```

Write a single line of code in the blank below, so that the program below will show a green square in the display window.

```
int w = 1;
switch(w) {
case 1:
     fill(255, 0, 0);
case 2:
     fill(0, 255, 0);
     ____________________
case 3:
     fill(0, 0, 255);
default:
     fill(0);
}
rect(10, 10, 80, 80);
```

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.)

1) Write a Processing program that uses a **for** loop or a **while** loop to put **17** little circles, each of diameter 8, in an X pattern in the display window similar to the one shown below.



To make it simpler, do the following:

- Use the default window size of 100 by 100
- Start by writing code to draw one slash of the X
- After one slash is looking good, work on the other