Topics for exam:
if-statements
if-else statements
for-loops (not for-each loops)

(1) Given this block of Java-like code, describe in English when each of code blocks a-d would execute:

```
if(booleanExpressionX) {
  //code block a
  //Will execute when booleanExpressionX is true
}
else if (booleanExpressionY) {
  //code block b
  //Will execute when booleanExpressionX is false and booleanExpressionY is true
}
else if(booleanExpressionZ) {
  //code block c
  //Will execute when booleanExpressionX is false and booleanExpressionY is false and booleanExpressionZ is true
}
else {
  //code block d
  //Will execute when all of booleanExpressionX, booleanExpressionY, and booleanExpressionZ are false
}
```

(2) Given this block of Java-like code, describe in English when each of code blocks a-d would execute:

```
if(booleanExpressionX || booleanExpressionX2) {
  //code block a
  //Executes when expression above is true.  Note that the expression above is an or, so the
  //expression is true when booleanExpressionX is true or booleanExpressionX2 is true or when
  //both are true.
}
else {
  //code block b
  //Executes when the expression above is false.  The expression above is false when both
  //booleanExpressionX and booleanExpressionX2 are false.
}

if(booleanExpressionY) {
  //code block c
  //Executes when booleanExpressionY is true

  if(booleanExpressionZ) {
     //code block d
     //Executes when both booleanExpressionY and booleanExpressionZ are true
  }
}
```

(3) Given this block of Java-like code, describe in English when each of code blocks a-d would execute:

```
if(booleanExpressionX) {
  //code block a
  //Executes when booleanExpressionX is true.
}
if(booleanExpressionY && booleanExpressionY2) {
  //code block b
  //Executes when expression above is true.  Note that the expression above is an "and"
  //expression.  In order for it to be true, booleanExpressionY and booleanExpressionY2 must be
  //true.
}


if(booleanExpressionZ) {
  //code block c
   //Executes when booleanExpressionZ is true.
}
else {
  //code block d
   //Executes when booleanExpressionZ is false.
}
```

(4) Use the following for-loop definition to answer parts a – d.

```
for(int count = 1; count < 9; count++) {
    _canvas.add(new graphics.Rectangle());
}
```

a) What is the initial value of this loop's counter variable?
1

b) What is the value of this loop's counter variable when the loop is done executing?
9

c) Circle the part of the code above that is considered the loop body.

d) How many times would this loop execute?
8

(5) Which of the following would be the correct choice to fill in the blank in the code to make this loop execute 5 times?

```
for (int count = 1; _____________; count++) {
      //some code for loop
}
```

a) `count < 5`
b) `count <= 5`
c) `count <= 6`

(6) Write a loop that puts 10 rectangles into a drawing canvas named canvas.

```
for(int  count = 0; count < 10; count++) {
   canvas.add(new graphics.Rectangle());
}
```

(7) Given the following declaration of a variable named map, answer parts a-d that follow:

java.util.HashMap<Student, Grade> map = new java.util.HashMap<Student,Grade>();

a) What is the type of the keys used in map?
Student

b) What is the type of the values stored in map?
Grade

c) Write the code to put something into map?
map.put(new Student(), new Grade());

d) Suppose you had a reference to a student named stu. How would you write the code to retrieve the Grade object associated with stu from the map?
map.get(stu);