

**The questions on this exam will be concerned with:**

- **if-statements**
- **if-else statements**
- **for-loops**
- **for-each loops**

**Any new material covered by Chapter 7 will not be covered on Exam 3.**

**(1)** After this code is run, which Actor is added to the world?

```
int sum = 4 + 6;
if (sum < 10 && sum > 0) {
    addObject(new Shape(), 45, 45);
}
else {
    addObject(new Flower(), 45, 45);
}
```

a) Shape

**b) Flower**

c) Actor

d) Nothing is added to the world.

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

```
if(booleanExpressionX) {
    //code block a
}
else if (booleanExpressionY) {
    //code block b
}
else if(booleanExpressionZ) {
    //code block c
}
else {
    //code block d
}
```

Only one of a,b,c,d will ever execute. If booleanExpressionX is true, a will execute, if booleanExpressionX is false and booleanExpressionY is true, b will execute. If booleanExpressionX and booleanExpressionY are false and booleanExpressionZ is true, c will execute, and if booleanExpressionX, booleanExpressionY, and booleanExpressionZ are false, then d will execute.

**(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
}
else {
    //code block b
}

if(booleanExpressionY) {
    //code block c

    if(booleanExpressionZ) {
        //code block d
    }
}
```

If booleanExpressionX is true, then a is executed. If booleanExpressionX is false, then b is executed. So, one of a or b will ALWAYS be executed.

If booleanExpressionY is true, then c is executed. If booleanExpressionZ is true, then d is executed. If booleanExpressionY is false, neither c or d is executed.

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

```
if(booleanExpressionX) {
    //code block a
}
if(booleanExpressionY) {
    //code block b
}

if(booleanExpressionZ) {
    //code block c
}
else {
    //code block d
}
```

We know that one of block c or d will always get executed. If booleanExpressionZ is true, c will be executed, if booleanExpressionZ is false, d will be executed.

If booleanExpressionX is true, a will execute. If booleanExpressionY is true, b will execute.

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

```
for(int count = 1; count < 9; count++) {  
    addObject(new Question(), 34, 34);  
}
```

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

(6) 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`**

d) `count <= 6`

(7) Write the code that gets all the Flowers from the scenario and then moves each flower 5 pixels to its right.

```
java.util.List<Flower> flowers = getWorld().getObjects(Flower.class);
```

```
for(Flower f: flowers) {  
    f.setLocation(f.getX() + 5, f.getY());  
}
```

-OR-

```
for(Flower f: getWorld().getObjects(Flower.class)) {  
    f.setLocation(f.getX() + 5, f.getY());  
}
```