

This exam will cover material from Chapter 6, 7, and 8

Here are some general topics for the exam from those chapters:

- **method overloading**
- **calling a superclass constructor from subclass**
- **static and final**
- **java.util.List objects**
- **for-each loop**
- **intersecting objects (using `getOneIntersectingObject` method)**
- **using `GreenfootImages` and painting our own images**
- **for-loops**
- **animation (explosions and smoke examples from class)**
- **using the mouse to capture user interactions**

(1) What is overloading (specifically method overloading)? When is it used?

(2) When are static and final used in a variable declaration?

(3) Write the code to see if an actor is colliding with another (an `Obstacle`). If there is a collision, the image of the `Obstacle` should change to “nothreat.png”.

(4) Write the code to create a `GreenfootImage` with a blue background and five white squares at random locations. The squares should be sized 20x20.

(5) Use the following for-loop definition to answer parts a – d. Parts e & f do not use the same code.

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

- a) What is the initial value of this loop’s counter variable?
- b) What is the value of this loop’s counter variable when the loop is done executing?
- c) Circle the part of the code above that is considered the loop body.
- d) How many times would this loop execute?

(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.

(8) Write the code so that an actor will follow the movements of the mouse on the world.

(9) Reproduce the code in the `grow()` or `shrink()` methods that we discussed in class that goes through an array of pre-defined images and sets the image of the actor to the next image of the series.