**GridWorld Case Study - Chapter 1 Quiz**

1. What does a bug do when it is facing a wall?

a. It stays where it is and drops a flower

b. It turns 90 degrees to the left

c. It turns 90 degrees to the right

d. It turns 45 degrees to the left

e. it turns 45 degrees to the right

2. Assume a bug is facing North. What happens when you invoke setDirection from the drop-down menu for a bug with negative 45?

a. It causes an IllegalArgumentException

b. The state of the bug does not change

c. The bug turns 45 degrees to the right

d. The bug turns 45 degrees to the left

e. The bug changes color to green

3. Which of the following is not an object that appears (has been instantiated) when BugRunner is run?

a. A bug

b. A grid

c. A actor

d. A flower

e. A rock

4. Which of the following is a behavior of a flower?

a. It moves behind the bug that dropped it

b. It changes its color

c. It turns 45 degrees to the right

d. It turns 90 degrees to the right

e. It does not change state

5 .Which of the following parameters for the setDirection method for bug will give the same result as setDirection with the parameter 45?

a. 0

b. 90

c. 135

d. 225

e. 405

6 .Which of the following methods applies only to the bug?

a. getDirection()

b. setDirection()

c. toString()

d. getColor()

e. canMove()

7. What happens when the step button is clicked?

a. The bug always moves

b. The next object in sequence acts

c. All the objects in the grid act

d. A new object randomly appears in the grid

e. A flower turns

8 What happens when the step button is clicked and a bug has a flower immediately in front of it?

a. The bug does not change state

b. The bug turns 45 degrees to the left

c. The bug turns 45 degrees to the right

d. The bug moves into the space occupied by the flower, squashing it

e. The bug turns into a rock

9 Suppose the grid has the following initial configuration, where "|" and "-" indicate a wall, "." indicates an open cell, "R" indicates a rock and "B" indicates the one bug in the grid. Assume the bug is in the default direction.

|....

|RR..

|B.R.

|..R.

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How many steps will it take until the bug "escapes" the rock trap by moving diagonally out of the corner?

a. 2

b. 3

c. 5

d. 7

e. The bug will never move out of the four corner locations

10 Suppose the grid has the following configuration after adding some objects. "|" and "-" indicate walls, "." indicates an open cell, "R" indicates a rock, "F" indicates a flower and "B" indicates a bug. Assume the cells are numbered starting with (0,0) in the upper left corner (increasing down and to the right).

x----

|....

|.FR.

|.BB.

|....

Suppose bug1 at position (2,1) (the left bug) has direction north (up) and bug2 at position(2,2) (the right bug) has direction west (left). What will be the results of the calls to canMove() for bug 1 and bug 2?

a. bug1.canMove() returns false; bug2.canMovereturns false

b. bug1.canMove() returns true; bug2.canMove( ) returns false

c. bug1.canMove() returns false; bug2.canMove returns true

d. bug1.canMove() returns 10; bug2.canMove returns -10

e. bug1.canMove() returns 0; bug2.canMove returns 1