## CPS 4 Test 1 - Oct. 6, 2005

Name (print, 1 pt): $\qquad$
Honor Ack. (signature): $\qquad$

Unless otherwise indicated, circle only one choice for each multiple choice question.
This test is 16 pages. The last page is blank and may be used as scratch paper. It must be turned in.

Given below are the world functions.


Given below are the chicken properties and methods.

| Chicken's details |  |
| :---: | :---: |
| properties methods | functions |
| create new variable |  |
| capture pose |  |
| color $=\quad-$ |  |
| opacity $=1$ (100\%) |  |
| vehicle $=$ world |  |
| skin texture $=$ Chicken. Texturehiap |  |
| fillingStyle $=$ solid |  |
| pointofview = position: 0, 0, -0.1; orientation: $(0,0,0) 1$ |  |
| isShowing = true |  |



Given below are the chicken functions.


Tiles at the bottom of the Alice window.
Do in order Do together Iffelse Loop While For all in order For all together Wait print (iil)

1. (3 pts) Consider the following html code.
```
<h3> The NC State Fair </h3>
<p\rangle> is coming to Raleigh </h2>
<p>> oct 14-oct 23.</hi>
<p>
Get Ride tickets <i>half-price</i>
online now!
```

Which picture corresponds to this code?
A)
The NC State Fair is comming to Raleigh
Oct 14-Oct 23.
B)
The NC State Fair
is coming to Raleigh
Oct 14-Oct 23.

## C)

The NC State Fair is coming to Raleigh
Oct 14-Oct 23.
Get Ride tickets half-price online now!

Get Ride tickets half-price online now!
D)

The NC State Fair
is coming to Raleigh
Oct 14-Oct 23.
Get Ride tickets half-price online now!
2. (3 pts) Which of the following is the correct html for displaying the image in the file lion.jpg?
A) <img src=lion>
B) <img src=lion.jpg>
C) <src img=lion>
D) <src img=lion.jpg>
3. (3 pts) Which of the following people was one of the inventors of Netscape?
A) Marc Andreessen
B) Stephen Cooper
C) Bill Gates
D) Wanda Dann
4. (3 pts) Consider the following text shown on a web page.

## Alice <br> Java

Which of the following is html code that could have produced this text?
A) <ul> <li> Alice <li> Java
</ul>
B) <ol>
<li> Alice
<li> Java
</ol>
C) <p> Alice

Java
D) <table>
<tr> <td> Alice </td> <tr> <td> Java </td> </table>
5. (3 pts) Which of the following are part of a storyboard (circle all that apply)?
A) list of objects
B) sketch of a scene
C) Alice code for a method
D) Description of how objects will interact
6. (12 pts) Consider the following Alice code.
world.my first method
world.my first method No parameters
No variables

A) In the line, ghost.fly height=3, which word is the parameter?
B) In the line, ghost. fly height=3, which word is the argument?
C) What type of value does ghost.inScaringDistance return?
D) For each of the following, categorize them as M for method, F for function, B for built-in, C for class-level and W for world-level. (list all that apply)

1) zombie say
2) ghost.fly
3) ghost.inScaringDistance $\qquad$
E) Alice will crash if the body of the else is executed because the user did not insert code. True or False?
7. (4 pts) Consider the following world that has the four objects: toySoldier, a second toySoldier called toySoldier2, stopSign and stoplightSign. The world has been setup as shown below. The stopSign is two meters from the stoplightSign, and toySoldier is exactly halfway between the two signs. The toySoldier2 is invisible and in the exact same location as toySoldier.


Consider the following code that is to be run with this world.


The diagram below is looking from above over the scene. The stopSign is represented by the square, the toySoldier is represented by the circle, and the stopLightSign is represented by the hourglass. Remember toySoldier2 is in the same location as toySoldier. Using the diagram below, draw the path of toySoldier.

$\Sigma$
8. (3 pts) Consider the following method whose code is not shown.

## zombie.DoSomething

zombie.DoSomething obi creature, 123 length, T/F isAlive, 4

Circle all of the following that are valid calls to this method.
A) zombie.DoSomething chicken 01 backward
B) zombie.DoSomething 20 ghost false forward
C) zombie.DoSomething ghost 20 true backward
D) zombie.DoSomething cow -5 false left
E) zombie.DoSomething pig 1 false 1
9. (6 pts) Consider the following world.Mystery function.

A) What does world.Mystery return when the following call is made?

$$
\text { world.Mystery } n m m 1=8-n m m 2=3-n m 3=4
$$

B) What does world.Mystery return when the following call is made?
world.Mystery $n m m 1=7<n m 2=11 ; n m 3=5$
10. (10 pts) Consider the following Alice world that has three objects: Penguin, soccerBall and lighthouse. The world is setup as shown on the left below.


Write the Alice code to do the following steps in order. (Hint: What size is the soccer ball?)
a) The penguin should face the soccerBall and move toward it, stopping right up against it. (The penguin should not go through the ball)
b) The penguin should move so it is standing right on top of the ball as shown in the picture to the right above.
c) The penguin should turn to face the lighthouse.
d) The ball should move 10 meters towards the lighthouse, with the penguin coming too. (Note: The ball does not need to roll, just move. You should not use a DoTogether for this step.)
11. (12 pts)
A) Complete the following function called WhichObjectisThisColor. This function assumes that each ball has had its color property set to a particular color and at least one of the balls has color "someColor". It returns the object that has color "someColor". If more than one object has color "someColor", return any of the objects with color "someColor".

```
obi World.WhichObjectlsThisColor
world.WhichObjectlsThiscolor someColor, obj ball1, obi ball2, obi ball3
    creater
No variables
    create
    // returns the ball of color "someColor", assume at least one of the balls has color "someColor"
```

B) Assume you are given an Alice world as shown below with the following six objects: a penguin, a lemur, a flamingo and three tennisballs named tennisBall, tennisBall2 and tennisBall3.


Each of the tennisballs have had their color property changed to one of the three colors: red, purple and yellow.

Give the Alice code to make the penguin move to the red ball, the lemur move to the purple ball and the flamingo move to the yellow ball. You must call the function WhichObjectisThisColor that you wrote in part A. Assume the function you wrote in part A is correct.
12. (18 pts)
A) Complete the following function called LargestBall. This function assumes that there are three ball objects of different sizes and it returns the largest of the three.

```
Obi world.LargestBall
world.LargestBall [obi ball1, obi] ball2, obi ball3
```

No variables
// Assume one of the balls is larger than the others, return the largest ball
B) Complete the function called IsLargestBallClosest. This function assumes there are two person objects and three ball objects. It returns true if the largest ball is closer to the first person object than the second person object. Otherwise it returns false. You must call the function LargestBall that you wrote in part A.

```
T/F/\mp@code{world.IsLargestBalIClosest}
world.IsLargestBallClosest [obi] person1, [obi person2, [obi] ball1, [bi] ball2, [obi ball3
```

No variabies
// return true if largest ball is closest to person1; otherwise, return false
C) Consider the following Alice world that has been setup with 5 objects: coach (he is wearing the hat), dj (the boy on the right), and three toyballs of different sizes called toyBall, toyBall2 and toyBall3.


Write the Alice code to do the following in this order. (You must call LargestBall and IsLargestBallClosest that you wrote in parts A and B.)

1) Have the largest ball move up one meter and then down 1 meter.
2) If the largest ball is closer to the coach than the dj, have the coach turn around one time and have the dj say "not closer to me."
3) If the largest ball is closer to the dj than the coach, have the dj turn around one time and have the coach say "not closer to me."
(extra page, must turn in)
