UNCA CSCI 107
Ordinary Exam 1
4 March, 2015

This is a closed book and closed notes exam. It is to be turned in by 10:50 AM.

Communication with anyone other than the instructor is not allowed during the exam. Calculators may be used during this exam, but cell phones and any other electronic or communication devices may not.

Name:_____

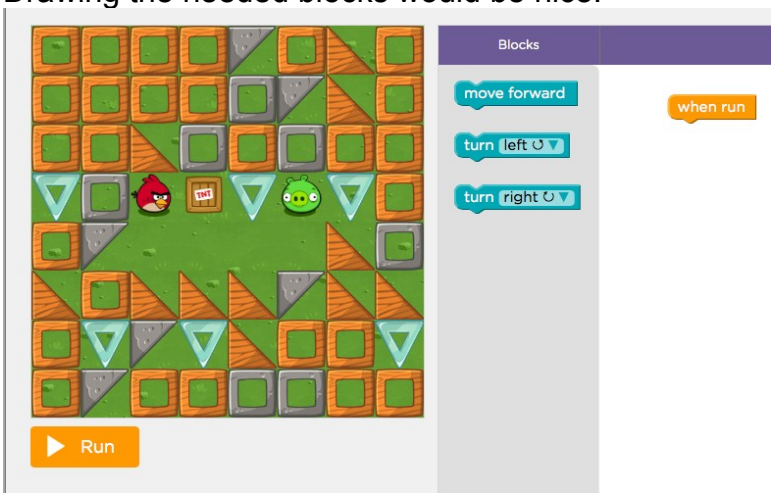
Problem 1 (5 points) Database query A
Complete the following table to make a query for all customers with the LastName of 'Brock' and a CostPerPerson greater than 1000.

Field:	FirstName	LastName	City	State	Destination	CostPerPerson
Table:	CUSTOMER	CUSTOMER	CUSTOMER	CUSTOMER	CUSTOMER	CUSTOMER
Sort:						
Show:	☑	☑	☑	☑	☑	☑
Criteria:						
or:						

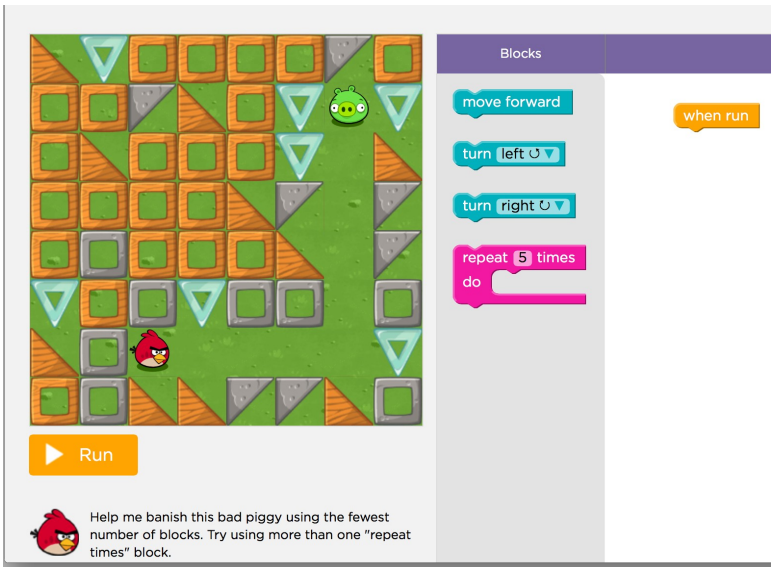
Problem 2 (5 points) Database query B
Complete the following table to make a query for all customers with the State of 'NC' or 'SC"

Field:	FirstName	LastName	City	State	Destination	CostPerPerson
Table:	CUSTOMER	CUSTOMER	CUSTOMER	CUSTOMER	CUSTOMER	CUSTOMER
Sort:						
Show:	☑	☑	☑	☑	☑	☑
Criteria:						
or:						

Problem 3 (10 points) Hour of code
Describe how you might get the bird to the frog using the turn and move operators. Drawing the needed blocks would be nice.



Problem 4 (10 points)
This one is harder. How could you that repeat to get the bird to the frog. Drawing the needed blocks would be nice.



Problem 5 (5 points)
How many values can be encoded using 6 bits?

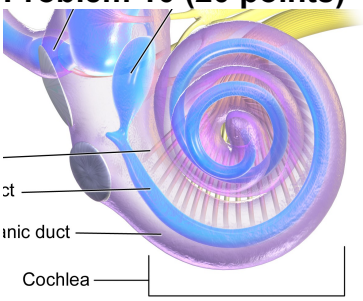
Problem 6 (5 points)
If you want to encode 20 possible values, how many bits are needed.

Problem 7 (10 points)
Programming can be complicated, but most programmers think there are three common elements of programming. One is sequencing. Name and describe the other two.

Problem 8 (5 points)
What is Unicode? Is it more likely to be used in Paris, Texas, or Paris, France?

Problem 9 (10 points)
Algorithmic thinking is considered a problem-solving process of computational thinking. Give a brief definition of algorithmic thinking and describe how you might use algorithmic thinking to make a healthy salad.

Problem 10 (20 points)



That's a picture of the cochlea on the left. Let's have a few questions that relate to the cochlea.

First, what is the range of hearing, in Hertz, for humans?

Second, how does the range of hearing change with age.

Finally, explain how the structure of the cochlea has influenced the design of audio compression scheme such as MP3.

Problem 11 (15 points)
Suppose 50 seconds of music is sampled at the rate of 48000 samples per second. How many samples will be taken?

If the samples are digitized at a bit depth of 16 bits. How many bits will be generated.

If the encoded bits stream is stored in a file, what is the size of the file in kilobytes?