University of California, Berkeley – College of Engineering

Department of Electrical Engineering and Computer Sciences Instructors: Dan Garcia and Brian Harvey

2010-09-20

CS10 Quest

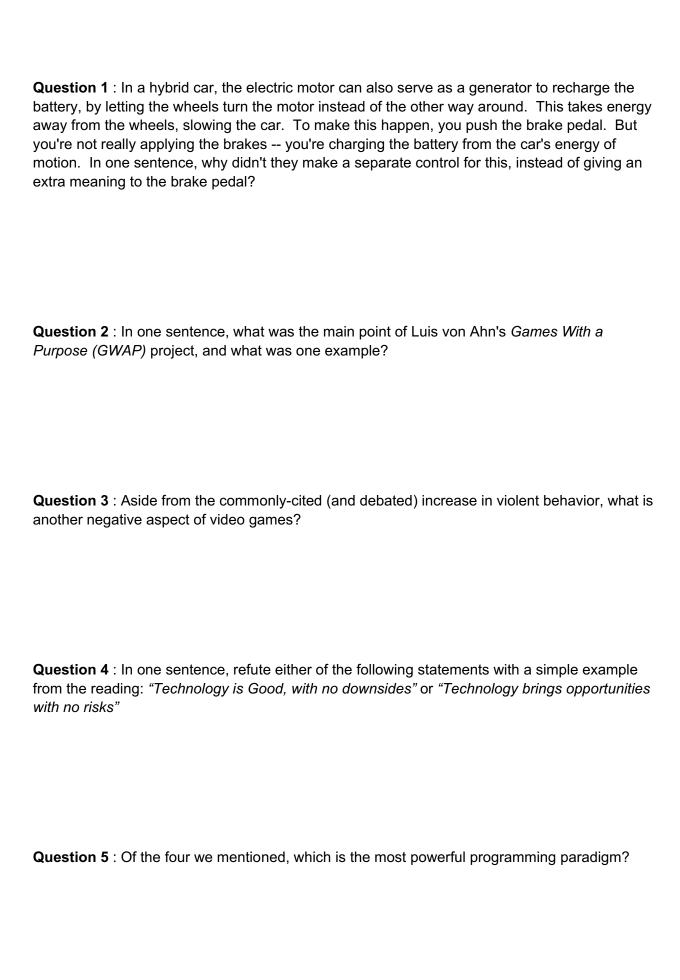
Last Name	Solutions					
First Name	Quest					
Student ID Number						
cs10- Login First Letter	abcdefghijklm					
cs10- Login Last Letter	abcdefghijklm nopqrstuvwxyz					
The name of your LAB TA (please circle)	Jon Luke					
Name of the person to your Left						
Name of the person to your Right						
All my work is my own. I had no prior knowledge of the exam contents nor will I share the contents with others in CS10 who have not taken it yet. (please sign)						

Instructions

Fall 2010

- Don't Panic!
- This booklet contains 4 numbered pages including this cover page. Put all answers on these pages; don't hand in any stray pieces of paper.
- Please turn off all pagers, cell phones and beepers. Remove all hats and headphones.
- Question 0 (1 point) involves filling in the front of this page and putting your login on every sheet of paper.
- You have 50 minutes to complete this exam. The Quest is closed book, no computers, no PDAs, no cell phones, no calculators, but you are allowed one double-sided set of notes. There may be partial credit for incomplete answers; write as much of the solution as you can. When we provide a blank, please fit your answer within the space provided.

Question	0	1	2	3	4	5	6	7	8	Total
Points	1	8	8	8	8	7	5	15	20	80
Score										



Login: cs10-____

Question 6: Draw the shape that results from the following code:

```
set num v to 0

repeat 6

change num v by 1

set sides v to (21 mod 17 + num mod 3)

pen down

repeat sides

turn (* 360 / sides degrees

move 50 steps

pen up
```

Question 7: You record the growth of a pandemic flu going around your city in the following table comparing the *total number of people with the flu (i.e., infected)* with that day.

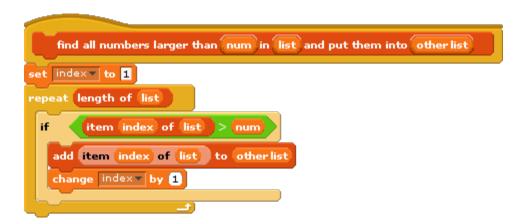
Day (input)	0	1	2	3	4
Infected (output)	1	3	9	27	81

a) Write a block Flu to estimate how many people will be infected on any given day, based on the assumption that the number infected on any given day will be three times that of the day before. Your answer should be written in such a way that would allow another CS10 student to translate it into proper Scratch code. Here is an example of a call to Flu:



b) If, say, on day 15 the number infected is (shudder) exactly the same as the city's population, on what day will it be a third of the city's population?

Question 8: The block below tries to find all the numbers in a list that are greater than a specific number, and put them in another list. However, there is one bug.



a) What would the buggy block produce for the other list (which starts out empty) if you provided the list below as the input list and the number 4 as num? Write your answer beside the list.



b) As the block is currently written, for a given num, write one sentence that describes *all* the lists that will **not** trigger the bug.

c) Describe how you would fix this so the block works as desired.