

CSC 108H1 F 2011 Test 1  
Duration — 45 minutes  
Aids allowed: none

Student Number: \_\_\_\_\_

Last Name: \_\_\_\_\_ First Name: \_\_\_\_\_

Lecture Section: L0101 and L0102 Instructors (**circle one**): Diane Horton and Michelle Craig

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*Do **not** turn this page until you have received the signal to start.*

(Please fill out the identification section above, **write your name on the back of the test**, and read the instructions below.)

*Good Luck!*

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This midterm consists of 3 questions on 6 pages (including this one). *When you receive the signal to start, please make sure that your copy is complete.* Comments and docstrings are not required except where indicated, although they may help us mark your answers. They may also get you part marks if you can't figure out how to write the code. No error checking is required: assume all user input and all argument values are valid.

# 1: \_\_\_\_\_/ 7

# 2: \_\_\_\_\_/ 8

# 3: \_\_\_\_\_/ 6

If you use any space for rough work, indicate clearly what you want marked.

TOTAL: \_\_\_\_\_/21

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**Question 1.** [7 MARKS]

The left-hand column in the table below shows a series of code fragments to be interpreted by the Python shell. For each, show the expected output in the right-hand column; if it would generate an error say so, and give the reason why.

<pre>invited = 5 answer = (invited == 5) print answer</pre>	
<pre>print 26 / int(3.7)</pre>	
<pre>name1 = "Bart" name2 = "Lisa" name1 = name2 name2 = name2 + "Simpson" print name1</pre>	
<pre>s = "Heffalump" print s[2:5]</pre>	
<pre>word = "begin" sentence = "no way" count = 0 for word in sentence:     count = count + 1 print count</pre>	
<pre>thing = 427 for item in thing:     print item</pre>	
<pre>def mystery(s):     for char in s:         if char != "x":             return True         else:             return False  print mystery("9138xx4")</pre>	

**Question 2.** [8 MARKS]**Part (a)** [5 MARKS]

Suppose we define the “left dominance” of a sound to be the number of samples in the sound where the left channel’s value exceeds the right channel’s value. Complete the following function according to its docstring.

```
def left_dominance(snd):  
    '''Return the left dominance of Sound snd.'''
```

**Part (b)** [3 MARKS]

Write a main block that (1) allows the user to choose a file and then (2) prints the left dominance of the sound contained in that file. Assume both the `sound` and `media` modules have been imported, and that the user chooses a `.wav` file.

Make sure that if this module is imported, none of the code for steps (1) and (2) executes — just the function definition.

**Question 3.** [6 MARKS]

The following program is intended to read a word from the user and then print it back, but with the vowels replaced by dashes. For example, if the user enters `Cool!` the program should print `C--l!`. But this program does not work.

```
def hide_vowels(s):

    for char in s:

        if char in "aeiouAEIOU":

            s[char] = '-'

if __name__ == '__main__':

    word = raw_input("Enter a word: ")

    hide_vowels(s)

    print s
```

**Part (a)** [2 MARKS]

The line that says `s[char] = '-'` gives an error. Which of the following statements is true?

- (a) Variable `char` has not been introduced to the namespace, so you can't try to use it.  
           True                      False
- (b) Variable `char` refers to a character and we must index strings using integers.  
           True                      False
- (c) This line must use `==` rather than `=`.  
           True                      False
- (d) Strings are immutable, so you cannot put `s[index]` on the left-hand side of an assignment statement, no matter what `index` is.  
           True                      False

**Part (b)** [4 MARKS]

Fix the program (by writing directly on the code above) so that it will work as specified by the question. You may fix the function in any way and you may change the call to the function as well.

*[Use the space below for rough work. This page will not be marked unless you clearly indicate the part of your work that you want us to mark.]*

Last Name: \_\_\_\_\_ First Name: \_\_\_\_\_

**Short Python function/method descriptions:**

`__builtins__`:  
`abs(number)` -> number  
Return the absolute value of the given number.  
`max(a, b, c, ...)` -> value  
With two or more arguments, return the largest argument.  
`min(a, b, c, ...)` -> value  
With two or more arguments, return the smallest argument.  
`raw_input([prompt])` -> string  
Read a string from standard input. The trailing newline is stripped. The prompt string, if given, is printed without a trailing newline before reading.

`int`:  
`int(x)` -> integer  
Convert a string or number to an integer, if possible. A floating point argument will be truncated towards zero.

`media`:  
`choose_file()` --> str  
Prompt user to pick a file. Return the path to that file.

`sound`:  
`create_sound(int)` --> Sound  
Create a sound with the specified number of samples. All sample values are 0.  
`get_left(sample)` --> int  
Return the left value of the given sample.  
`get_right(sample)` --> int  
Return the right value of the given sample.  
`load_sound(str)` --> Sound  
Return a Sound object from file with the given filename.  
`set_left(sample, int)`  
Set the left value of the given sample to the given int value.  
`set_right(sample, int)`  
Set the right value of the given sample to the given int value.  
`play(Sound)`  
Play the given Sound.