

PLEASE HAND IN

UNIVERSITY OF TORONTO
Faculty of Arts and Science

CSC 108H1Y
Instructor: Daniel Zingaro

Duration — fifty minutes

Examination Aids: None.

PLEASE HAND IN

Student Number:

Last (Family) Name(s):

First (Given) Name(s):

*Do **not** turn this page until you have received the signal to start.*
(In the meantime, please fill out the identification section above,
and read the instructions below *carefully*.)

This examination consists of 4 questions on 6 pages (including this one).

Instructions:

- Check to make sure that you have all 6 pages.
- Read the entire exam before you start.
- Not all questions are of equal value, so budget your time accordingly.
- You do not need to add `import` lines or do error checking
- If you use any space for rough work, indicate clearly what you want marked.

MARKING GUIDE

1: _____/ 5

2: _____/ 7

3: _____/ 6

4: _____/ 7

TOTAL: _____/25

Good Luck!

Question 1. [5 MARKS]

Complete the following function according to its docstring description.

```
def rep_chars (s, num):  
    '''Return a string consisting of each character of s repeated num times.  
    For example, rep_chars ('abc', 2) returns aabbcc'''
```

Question 2. [7 MARKS]

The left-hand column in the table below shows a series of statements **to be interpreted by the Python shell**. For each **print** statement, show the expected output in the right-hand column.

Python statements	Output
<code>print 3 + 8.0</code>	
<code>print True and True or False</code>	
<code>x = 5 x = x + x + 1 + x x + 3 print x</code>	
<code>print 'abc'.find('b') * 3</code>	
<code>x = [1, 2, 3] y = x[2] y += 1 print x</code>	

Question 3. [6 MARKS]

The function below makes a picture look like it was taken at sunset.

```
import media

def make_sunset(pic):

    for pixel in pic:

        # get pixel's old green value
        green = media.get_green(pixel)

        # set pixel to new green value
        media.set_green(pixel, int(green * 0.7))

        # get pixel's old blue value
        blue = media.get_blue(pixel)

        # set pixel to new blue value
        media.set_blue(pixel, int(blue * 0.7))
```

Part (a) [3 MARKS]

The function does not **return** anything (it has no **return** statement). Clearly explain how this function is able to do its job in spite of this. Refer to specific properties of pictures in your answer.

Part (b) [3 MARKS]

In the lines that use **set_green** and **set_blue**, why do we use the **int** function? Explain the purpose of **int**, and what might happen if we did not include it.

Question 4. [7 MARKS]

Complete the following function according to its docstring description. The function is designed to ask for a valid password (presumably for a user setting up a new account of some sort) until one is given, or the user reaches the maximum guesses allowed. *You must use a while-loop in your solution.* You may assume that `max_attempts` is at least 1.

```
def get_password (max_attempts):  
    '''Prompt the user for a valid password until a valid one is given  
    or they have entered max_attempts invalid passwords.  
    A valid password is one that is at least length 6 and is not the word "password".  
    Each time the user gives an invalid password, tell them that it  
    was invalid and prompt again if they have not reached max_attempts tries.  
    If the user gives max_attempts invalid passwords, return the empty string;  
    otherwise return the valid password they gave'''
```

*[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.]*