

CSCI 1300 Spring 2013 - Test 1

Your name: _____

Your 9-digit student id: _____

Your TA's name: _____

1. (2 points) You just started a new command line session. Your current working directory is /home/user/. Your python program is in /home/user/code/my_groovy_program.py. Write the sequence of command line statements that are necessary to change directories and run your program using the Python interpreter.

2. (2 points) Your file 'test-1-code.py' looks like this:

```
1 if my_num == 4
2     print "Yay"
3 else
4     print "Not four."
```

When you run the program it gives the following problem report:

```
File "test-1-code.py", line 1
    if my_num == 4
        ^
```

SyntaxError: invalid syntax

What is the bug? Write code that fixes the bug, or (if possible) modify the code above to prove that you know what's wrong. Note that there might be two bugs of the same kind.

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3. This is a multi-part question based on the following code, which is syntactically correct and does print something out—it just doesn't print out what it is supposed to, according to the comment that documents the desired behavior:

```
8 # find the sum of all the given
9 # numbers divisible that are by six
10 numbers = range(25, 40)
11 result = 0
12 for num in numbers:
13     if num % 6 == 1:
14         result = num
15 print "Result: " + str(result)
```

(a) (2 points) On line 10, we create a list. What are the contents of this list? You don't have to enumerate them all, just describe what it is.

(b) (1 point) Without changing the code, what does it print out on line 15?

(c) (2 points) There are two bugs in the above code. One is on line 13, and the other is on line 14. In the space below, write what those lines should both be.

(d) (1 point) Now that you've fixed the code, what is the correct value that it prints on line 15?

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4. This question is all about the following syntactically correct code:

```
19 def is_purple(num):
20     if num > 100:
21         return True
22     if num < 40:
23         return False
24     for x in range(2, num):
25         if num % x == 0:
26             return False
27     return True
```

(a) (1 point)

Let's say I have the following function call.

```
print "Is 53 purple?" + is_purple(53)
```

... but when we run that line of code, Python complains:

```
TypeError: cannot concatenate 'str' and 'bool' objects
```

What does the above error mean? How would we fix it?

(b) (1 point) Is 33 purple? (yes/no)

(c) (1 point) Is 400 purple? (yes/no)

(d) (1 points) Describe (1 or 2 sentences) which numbers are purple.

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5. Consider the following syntactically correct function definition:

```
19 def is_purple(num):  
20     if num > 100:  
21         return True  
22     if num < 40:  
23         return False
```

Describe in a sentence what role the following special words play:

(a) (1 point) **def**

(b) (1 point) **is_purple**

(c) (1 points) **num**

(d) (1 point) **return**

6. (4 points) Write Python code that prints the square of 0, 1, 2, 3, and 4, in that order *using a for-loop*. There are a few ways of doing this. The only requirement is you use a for-loop.

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7. (4 points) Write a function called 'print_third' that takes a list as input and returns the third item in that list. If the list doesn't have at least three elements, it should return None.

Note: you can use the following code to get the length of a list called my_list:

```
size = len(my_list)
```

'size' is now an integer that could be 0, 1, 2, or anything larger, depending on how many things are contained in my_list.

Remember to make your function syntactically correct!

8. (4 points) Write a function called 'years_left' that takes a single number as input that represents a person's age. The function should return an integer that is the number of years that person has until retirement. Assume that the retirement age is 65.