1. [10 points] What is the differences between programming in interactive mode versus script mode? Describe succinctly one main advantage and disadvantage of each.

2. [10 points] Variables, operators, expressions, and statements. What would Python’s interactive interpreter show in each of the situations below? Fill in the blanks. Assume the interpreter is never restarted. The first one is an example.

```python
>>> 1+1
2
>>> x = 8%2

>>> print x

>>> 5/6

>>> a = 4
>>> b = a
>>> print b

>>> a = 5
>>> print b

>>> x = 4
>>> x = x + 1
>>> print x

>>> x += x
>>> print x

>>> 4 == 5

>>> 4 < 5 and x < x+1

>>> print 2x
```
3. [10 points] Describe succinctly three advantages of dividing a problem into separate smaller functions, as opposed to solving it all in one piece of long code.

For the questions ahead (4-8), you will be shown a Python function. You will then be shown a call to the function on Python’s interactive interpreter. You are asked to fill in the blanks. You are asked to provide a succinct description of the function. See the example below.

| def f(x):
| if x > 0:
| x = x*x
| return x
| Function f receives a number x. It returns the square of the number if x is positive; otherwise it returns the same number given.
| >>>f(2)
| _4_
| >>>f(-2)
| _-2_____ |

4. [10 points] Conditionals.

| def f(x,y,z):
| if x < y:
| return x
| elif x > y:
| return y
| else:
| return z
| >>>f(1,2,3)
| ____________ |
| >>>f(2,1,3)
| ____________ |
| >>>f(3,2,1)
| ____________ |
| >>>f(2,2,3)
| ____________ |
5. [10 points] While loops.

```python
def h(n):
    a = 0
    while n > 0:
        a = a + n
        n = n - 2
    return a
```

```python
>>> h(4)
___
>>> h(3)
___
>>> h(-3)
___
```

6. [10 points] For loops and lists.

```python
def f(list1, list2):
    newlist = []
    for elemA in list1:
        for elemB in list2:
            if elemA == elemB:
                newlist.append(elemA)
    return newlist
```

```python
>>> f([1, 3, 5], [1, 5])
___
>>> f([1, 3, 1], [1, 5])
___
>>> f([1, 3, 5], [1, 5, 5])
___
>>> f('avocado', 'milkshake')
___
```

```python
def f(word, letter):
    index = 0
    while index < len(word):
        if word[index] == letter:
            return index
        index = index + 1
    return -1
```

```python
>>> f('mango', 'a')
___
>>> f('pineapple', 'c')
___
```

8. [10 points] Dictionaries.

```python
def r(d, v):
    for k in d:
        if d[k] == v:
            return k
```

```python
>>> d = {'one': 'uno', 'two': 'dos'}
>>> r(d, 'one')
___
>>> r(d, 'uno')
___
>>> r(d, 'three')
___
```

9. [20 points] A palindrome is a word that is spelled the same backward and forward, like “noon” and “redivider”. Write a function that receives a word and returns True if the word is a palindrome, and False otherwise.

```python
def is_palindrome(word):
    for i in range(len(word) // 2):
        if word[i] != word[len(word) - 1 - i]:
            return False
    return True
```

```python
>>> is_palindrome('noon')
True
>>> is_palindrome('redivider')
True
>>> is_palindrome('apple')
False
```
Mark an X on the answer closest to how you feel:

A. You would like the pace of this course to be:
   __ Slowed down.
   __ Kept at around the current pace.
   __ Picked up a bit.

B. How comfortable do you feel with what we have learned in the course so far:
   __ I’m terribly behind, I don’t know if I’ll ever catch up.
   __ I’m a little behind, but I feel I’m getting better with practice.
   __ I’m just about to-date with what is being taught.
   __ I’m learning some stuff, but a good part of it I know already.
   __ I know all this stuff. I should have asked to go directly into Q320.

C. How often have you done the required readings of the book and practiced its demonstrations and exercises before class:
   __ Never.
   __ A few times.
   __ Most times.
   __ Always.