Quiz 2

Name: ________________________________

Question 1 (20 points). For each of the descriptions below, write the corresponding Python code. The first part of this question has been filled in for you as an example.

<table>
<thead>
<tr>
<th>Description</th>
<th>Expression</th>
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<tbody>
<tr>
<td>(a). Variable x does not contain the value zero.</td>
<td>x != 0</td>
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<tr>
<td>(b). Variable a contains a value which is less than 2.</td>
<td></td>
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<tr>
<td>(c). Variable y contains a positive number.</td>
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<tr>
<td>(d). The value in variable y is between 3 and 5.</td>
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<tr>
<td>(e). The string in variable s is at least five characters long.</td>
<td></td>
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<tr>
<td>(f). The string in variable s is one of &quot;y&quot;, &quot;Y&quot;, &quot;yes&quot;, or &quot;Yes&quot;.</td>
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</table>

Question 2 (30 points). Each of the following Python programs prints "Hello" some number of times. For each program, indicate the number of times it prints "Hello" and then briefly justify your answer. Hint: try working out how the program runs (perhaps by tracking the value of each variable); this should help you reach the right answer.

(a).
```python
for n in range(50,100):
    print "Hello"
```

(b).
```python
for i in range(4):
    for j in range(3):
        print "Hello"
```

(c).
```python
for i in range(50):
    if i % 13 == 0:
        print "Hello"
    elif i % 37 == 0:
        print "Hello"
```
Question 3 (30 points). Each program below is accompanied by a description of what it is intended to do. The programs are incorrect; they do not do what is described. Describe what is wrong with each program and how to correct it.

(a). This program was intended to print the last letter in a string entered by the user.
```
message = raw_input("Please enter a message: ")
print "The last letter was %s." % (message[len(message)])
```

(b). This program was intended to print the sum of all numbers between 1 and 100.
```
total = 0
for i in range(1,101):
    total = i
print total
```

Question 4 (20 points). Consider the following two programs. One is written using `elif` on line 5; the other uses `if` in its place. Otherwise, the programs are identical.
```
num = int(raw_input("What is your number? "))
print "Your number is",
if num % 5 == 0:
    print "funny."
elif num % 3 == 0:
    print "spooky."
else:
    print "normal."
```
```
num = int(raw_input("What is your number? "))
print "Your number is",
if num % 5 == 0:
    print "funny."
if num % 3 == 0:
    print "spooky."
else:
    print "normal."
```

Under what circumstances will these two programs give different output? Describe the general rule for when the programs will give different output. Then, give an example of a number the user could enter that would generate different output and describe the output for each program.