In-class Practice: Functions and Conditionals

1. Imagine we want to check if a year is in the “aughts” (2000-2009, both inclusive). Below are many statements that evaluate to a boolean. Circle ALL statements that correctly test if a year is in the aughts.

A. `year >= 1999 and year <= 2010`
B. `year > 1999 and year < 2010`
C. `year >= 2000 and year <= 2009`
D. `year > 2000 and year < 2009`
E. `1999 < year < 2010`
F. `2000 <= year <= 2009`
G. `year==2000 and year==2001 and` ...(continue pattern) `and year==2009`
H. `year==2000 or year==2001 or` ...(continue pattern) `or year==2009`
I. `year > 1999 and < 2010`
J. `(year - 2000) >= 0 and (year - 2000) <= 9`
K. `not (year <= 1999 or year >= 2010)`

2. Write a function that takes one integer as an argument. Your function should return `True` if the integer passed in is even, and `False` if the integer is odd.

3. Consider the following conditional:

```
if name == “Louie” or “louie”:
     print(“Go lakers or something, I don’t know lol”)
```

There is an issue with this conditional. Describe the issue and how to fix it.

4. I have defined a function below. Use that definition to answer the following questions.

```
def compare_strings(a, b):
     if len(a) < len(b):
          return “A!”
     elif len(a) > len(b):
          return 12
     else:
          return a < b
```

A. How many different values can this function return?

B. For each possible return value, please give an example call to this function that returns that value. Make sure you specify which call returns which value.

5. Consider the following code:

```
def code_check(secret_code):
     if secret_code.lower()[0] == ‘g’ and len(secret_code) == 9:
          print(“Welcome to GVSU!”)
          return secret_code[1:]
     else:
          return False
```

A. As succinctly as you can, describe what this code does.

B. Give an example function call that triggers the first return, and another function call that triggers the second return *without causing an error*

6. Assume that a student needs at least 120 credits and a GPA over 2.0 to graduate. Given two variables, `num_credits` and `gpa`, please give an expression that evaluates to whether the student is ready to graduate.

7. Please give the result of each boolean expression:

`True and False`	`___________`	`True or False`	`___________`
`not True`	`___________`	`“H” in “hello”`	`___________`
`5 > 6 or 1 < 8`	`___________`	`len(“x”) != 2`	`___________`
`“5” == 5`	`___________`	`1 < 2 < 3`	`___________`

8. What will the following code print?

```
x = 7
y = 5
z = 2
if x + z >= 12:
     print(“Entering zone 1”)
     z = z + 2
     if y < 5:
          print(“Catastrophe”)
     else:
          print(“Calamity”)
else:
     x = x * 2
     print(“You’ve entered zone 2”)
     if z == 4:
          print(“Everything is fine”)
     else:
          print(“It’s whatever”)
print(f’x is {x}’)
print(f’y is {y}’)
print(f’z is {z}’)
```