**Spring 2020 COP 2930 Final Exam Part A (April 27, 2020)**

**Directions: Write your answers to each question in a Word document. Upload a single file either .doc, .docx or .pdf with your answers to each question.**

**Time Limit: 1 hour (Opens at 1 pm, Due at 2 pm)**

1) The following line of python code has a syntax error. How can it be fixed?

```
value = int(input("How much is the item worth?\n")
```

2) Python assigns types to variables based on how they are first used. What are the types assigned to the variables a, b, and c in the lines of code below?

```
a = input("")
b = int(input(""))
c = float(input(""))
```

3) A programmer is trying to read in a menu choice which must be an integer in between 1 and 5. If it is not, she wants to reprompt the user to enter a valid choice. What is wrong with her code segment below? How can it be fixed? (Don't answer the brevity of the print message. I am only concerned with what the code does, not how pretty or user friendly it is.)

```
choice = 0
while choice < 1 and choice > 5:
    choice = int(input("Please enter a valid choice."))
```

4) Provide three examples of mod (%) providing a useful calculation.

5) A student is trying to figure out how many 3 ft by 3 ft tiles can completely fit (without any cutting of tiles) on a floor of size width feet by length feet and has written the code shown below. It is incorrect. How can he fix it?

```
width = int(input("What is the width of the room\n"))
length = int(input("What is the length of the room in feet?\n"))
tiles = int((width/3)*(length/3))
print(tiles, "complete tiles can fit on the floor.")
```

6) The following function takes in a list of lists, where each list represents a list of one student's grades. The job of the function is to replace the minimum grade in the list with a -1 as a way of indicating that that grade should be skipped. The function does not work. Why? What can be done to fix it? (Hint: The fix actually shortens the code a bit!)

```
def dropMinGrade(studentGrades):

    for i in range(len(studentGrades)):

        minIdx = 0
        for j in range(len(studentGrades[i])-1):
            if studentGrades[i][j] > studentGrades[i][j+1]:
                minIdx = j
            else:
                minIdx = j+1

        studentGrades[i][minIdx] = -1
```