STAT 2255
Fall 2022
Midterm
10/12/2022
Time Limit: 1 hour

Name: _____

Student ID: _____

- This exam contains 6 pages (including this cover page) and 4 questions.
- Total of points is 100.
- Try your best to make your answers **organized** and **neat**.
- Please remember to breathe and stay calm, and just do your best to demonstrate you've worked hard to learn the material and everything will be fine.

Grade Table (for instructor use only)

Question	Points	Score
1	50	
2	20	
3	15	
4	15	
Total:	100	

1. Multiple Choices Questions.

   Each of the following questions has **one** correct answer. Please **circle and write down** the correct answer.

   (a) (5 points) What is the returned value of the following code?

   ```
   5 < 6 and 5 % 3 < 1
   ```

   A. yes
   B. None
   C. False
   D. True

   (b) (5 points) Consider the code below. What is the print value of x?

   ```
   x = ['spam']
   y = x
   y[0] = 'Python'
   print(x)
   ```

   A. `'Python'`
   B. `['Python']`
   C. `'spam'`
   D. `['spam']`

   (c) (5 points) What is the printed value of a?

   ```
   def square_function(x):
       a = x**2
   a = square_function(2)
   print(a)
   ```

   A. 4
   B. None
   C. 2
   D. 0

   (d) (5 points) When designing class, we would like to partition attributes into **public** and **private**. According to what we talked about during the lecture, which of the following name is the one you should use for a private attribute?

   A. `self.private_password`
   B. `self._password`

C. `self.__password`

D. `self.Private_password`

(e) (5 points) Given the Coin class defined below, how do you create a new object of the class Coin?

```
class Coin:
    def __init__(self):
        self.faces = ['Tail' , 'Head']
    def flip(self):
        print('Flipping a coin!')
```

A. `coin1 = Coin.__init__(self)`

B. `coin1 = Coin()`

C. `coin1 = Coin(self)`

D. `coin1 = Coin.__init__()`

(f) (5 points) What is the print values of the following code?

```
L1 = ['a', 'b']
L2 = [1, 2]
for char in L1:
    for num in L2:
        if num % 2 == 0:
            break
        print(char, num)
```

A.
```
a 1
a 2
b 1
b 2
```

B.
```
a 1
b 1
```

C.
```
a 1
b 1
a 2
b 2
```

D.
```
a 2
b 2
```

(g) (5 points) Given the code below, what is the print value of `L`?

```
L = [1,2,3,4,5]
L.remove(2)
print(L)
```

A. `[1,2,4,5]`
B. `[1,3,4,5]`
C. `[3,4,5]`
D. `[1,2,3]`

(h) (5 points) What are the type of a, b and c based on the following assignments?

```
a = []
b = {}
c = ()
```

A. a - list; b - set; c - tuple
B. a - list; b - dict; c - tuple
C. a - None; b - None; c - None
D. a - Empty; b - Empty; c - Empty

(i) (5 points) What are the print values of following code?

```
def f(a = 1, b = 2):
    print(a + b)

f(2, 1)
f(2)
f()
```

A. `1`
   `2`
   `3`
B. `3`
   `4`
   `3`
C. `3`
   `3`
   `3`
D. `3`
   `TypeError`
   `TypeError`

(j) (5 points) What will following code print?

```
x = 'SPAM'
def f():
    x = 'Hello'
    print(x)

f()
print(x)
```

A. `SPAM`
   `Hello`

B. `Hello`
   `SPAM`

C. `Hello`
   `Hello`

D. `SPAM`
   `SPAM`

2. True/False Questions. Please **circle and write down** the correct answer below.

(a) (5 points) `type(2.0*5+1)` returns `int` in Python. [True False]

(b) (5 points) Let `S` be a set such that `S={2, 3, 1}`. `S[1]` returns `3` in Python. [True False]

(c) (5 points) What does `[] == True` return in Python? [True False]

(d) (5 points) Only show the necessary details to the user refers to the Abstraction feature of the Object-oriented Programming. [True False]

3. Short Answer Question - I:

   Suppose we define functions `f1`, `f2` and `f3` in a module named `my_function`.

   (a) (5 points) Write down two different approaches to import function `f1` from the `my_function`.

   (b) (10 points) Write down two different approaches to import all 3 functions from the `my_function`. What's the difference between these two approaches?

4. Short Answer Question - II: Given the list defined as below

```
L = list(range(1, 10, 2))
```

   (a) (5 points) What will `len(L)` return?

   (b) (5 points) What will `L[1:-1]` return?

   (c) (5 points) What will `[(i, i*2) for i in L if i > 5]` return?