**CS 299 Quiz #1 (50 points) Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Part I (20 points)** Multiple choice. Write answer on separate sheet. Assume all codes indented properly.)

1. What will be printed out by the following program?

def prob1 () :

for i in range (4) :

print(i, end = ‘ ‘ )

print(prob1())

A. Null

B. None

C. 0 1 2 3 None

D. 0 1 2 3

E. 0 1 2 3 4

1. Will the following program run properly?

import math

def main():

math.sin(math.pi)

main()

A. Yes

B. No

1. Given the following function header:

def f(p1, p2, p3, p4)

Which of the following is correct to invoke it? (choose all applicable ones)

A. f(1, 2, 3, 4)

B. f(p1 = 1, 2, 3, 4)

C. f(p1 = 1, p2 = 2, p3 = 3, 4)

D. f(p1 = 1, p2 = 2, p3 = 3, p4 = 4)

E. f(1, 2, 3, p4 = 4)

1. What will be displayed by the following code?

x = 1

def f1():

y = x + 2

print(y, end = ‘ ‘)

f1()

print(x)

A. 1 3

B. 3 1

C. The program has a runtime error because x is not defined.

D. 1 1

E. 3 3

1. What will be displayed by the following code?

x = 1

def f2():

y = x + 2

x = y + 1

print(y, end = ‘ ‘)

f2()

print(x)

A. 4 3

B. 3 4

C. The program has a runtime error because x is not defined.

D. 1 1

E. 3 3

1. What will be displayed by the following code?

x = 1

def f3():

global x

y = x + 2

x = y + 2

print(y, end = ‘ ‘)

f3()

print(x)

A. 4 3

B. 3 4

C. The program has a runtime error because x is not defined.

D. 1 1

E. 3 3

1. What will be displayed by the following code?

def g1(x = 1, y = 2):

x = x + y

y += 1

print(x, y)

g1()

A. 1 3

B. 3 1

C. The program has a runtime error because x and y are not defined.

D. 1 1

E. 3 3

1. What will be displayed by the following code?

def g2(x = 1, y = 2):

x = x + y

y += 1

print(x, y)

g2(2, 1)

A. 1 3

B. 2 3

C. The program has a runtime error because x and y are not defined.

D. 3 2

E. 3 3

1. What will be displayed by the following code?

def f(x = 1, y = 2):

return x + y, x – y

x, y = f(y = 2, x = 1)

print(x, y)

A. 1 3

B. 3 1

C. The program has a runtime error because the function returns the multiple values

D. 3 -1

E. -1 3

**Part II (30 points) Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

1. (10 points) Run the codes in part I, and provide answer below.
2. 2. 3. 4. 5.

6. 7. 8. 9.

1. Programming.
2. (10 points) Write a function myAve that takes a variable length of parameters and returns the average of integer parameter values (if a value is not an integer, ignore it instead of issuing an error.) Code the following test cases as function call.

Tests:

(1) myAve(3, 2.5, 2, 3.4, 4) #the average is 3+2+4/3 = 3.0

(2) myAve() #the average is 0.0

(3) myAve(5, ‘5’, 6, ‘abc’, 5.0) #the average is 5+6/2 = 5.5

1. (10 points) In crypt-arithmetic puzzles, mathematical equations are written using letters. Each letter can be a digit from 0 to 9, but no two letters can be the same. Here is a sample problem:

SEND + MORE = MONEY

A solution to the puzzle is S = 9, R = 8, O = 0, M = 1, Y=2, E=5, N = 6, D = 7.

Write a program that asks a user to enter a crypt-arithmetic equation (assuming only three words involved). Then, your program will try to solve the equation. If the equation can be solved, output the values for the letters that satisfy the equation. If the equation cannot be solved by your program, output a message.

(Problem 2 alternate: 10 points)

Given a 4-digit integer, implement the following encryption algorithm and output the

encrypted integer.

(a) Replace each digit i by (i+7) mod 10.

(b) Swap the 1st digit with the 3rd and swap the 2nd digit with the 4th.

For instance,

given data = 1009, after step (a) → 8776, after step (b) → 7687.