

CIS 3260 – Final Exam

Your Name: _____

Your Panther ID: _____

Part 1 – Multiple Choices [30 points]

1) [2 points] The function `range(0,5)` returns a sequence

- _____.
- A. 0, 1, 2, 3, 4
 - B. 1, 2, 3, 4
 - C. 0, 1, 2, 3, 4, 5
 - D. 1, 2, 3, 4, 5

2) [2 points] Consider the following incomplete code. The missing function body should be _____.

```
def f(num):  
    # Missing function body  
  
print(f(5))
```

- A. `return number`
- B. `return num`
- C. `print("number")`
- D. `print(number)`
- E. `return "num"`

3) [2 points] A variable defined inside a function is referred to as _____.

- A. a local variable
- B. block variable
- C. global variable
- D. function variable

4) [2 points] Which of the following loops correctly computes $1/2 + 2/3 + 3/4 + \dots + 99/100$?

```
A:
sum = 0
for i in range(1, 99):
    sum += i / (i + 1)

print("Sum is", sum)
```

```
B:
sum = 0
for i in range(1, 100):
    sum += i / i + 1

print("Sum is", sum)
```

```
C:
sum = 0
for i in range(1, 100):
    sum += i / (i + 1)

print("Sum is", sum)
```

A. A

B. B

C. C

D. None of them

5) [2 points] `Welcome to Python".split('&')` is _____

A. `("Welcome", "to", "Python")`

B. `"Welcome", "to", "Python"`

C. `["Welcome", "to", "Python"]`

D. `{"Welcome", "to", "Python"}`

E. None of above

6) [2 points] Assume `m = [[1, 2, 3], [4], [7, 8, 9]]`, what is `m[1][0]`?

A. 1

B. 4

C. 2

D. 3

E. 0

7) [2 points] A function _____.

- A. must always have a return statement to return multiple values
- B. must have at least one parameter
- C. must always have a return statement to return a value
- D. may have no parameters

8) [2 points] Given the following function

```
def nPrint(message, n):
    while n > 0:
        print(message)
        n -= 1
```

What will be displayed by the call `nPrint('a', 5)`?

- A. aaaaaa
- B. aaaa
- C. aaa
- D. infinite loop
- E. invalid call

9) [2 points] The header of a function consists of _____.

- A. function name and parameter list
- B. parameter list
- C. function name

10) [2 points] Suppose `list1 = [1, 2, 3]`, what is the output of the following code?

```
for i in list1:
    print(i * 2, end = ' ,')
```

- A. 246
- B. 2 4 6
- C. [2, 4, 6]
- D. 2, 4, 6,

11) [2 points] Which of the following should be defined as a function without return?

- A. Write a function that converts a lowercase letter to uppercase letter.
- B. Write a function that checks whether a number is from 1 to 50.
- C. Write a function that returns a random integer from 1 to 50.
- D. Write a function that prints characters from 'a' to 'm'.

12) [2 points] Analyse the following code.

```

count = 0
while count < 100:
    # Point A
    print("Welcome to Python!")
    count += 1
    # Point B

```

```

# Point C

```

- A. count < 100 is always True at Point A
- B. count < 100 is always True at Point B
- C. count < 100 is always False at Point B
- D. count < 100 is always True at Point C

13) [2 points] The expression "Good " + 1 + 2 + 3 evaluates to _____.

- A. Good123
- B. Good6
- C. Good 123
- D. Illegal expression

14) [2 points] The Unicode of 'a' is 97. What is the Unicode for 'c'?

- A. 96
- B. 97
- C. 98
- D. 99

15) [2 points] What will be displayed by the following code?

```

myList = [1, 5, 5, 5, 5, 1]
max = myList[0]
indexOfMax = 0
for i in range(1, len(myList)):
    if myList[i] > max:
        max = myList[i]
        indexOfMax = i

print(indexOfMax)

```

- A. 0
- B. 1
- C. 2
- D. 3
- E. 4

Part 2 - Fill in blanks [20 points]

- 1) [9 points] What are the results for following expressions in Python?

Assume `s1="Happy Holidays!"`, `s2="2022"`, `t=[1,2,3,4]`

- (1) `s1[1:2]` _____
- (2) `s2.isdigit()` _____
- (3) `s1.count("o")` _____
- (4) `t.count(5)` _____
- (5) `s1.isupper()` _____
- (6) `s2*2` _____
- (7) `len(t)` _____
- (8) `max(t)` _____
- (9) `t[-1]` _____

- 2) [6 points] Assume you are given a list as below,

`lst=[150,50,30,45,70,100]`

- (1) [2 points] Write a statement to append a new value 90 at the end of **lst**

- (2) 2 points] Write a statement to remove the first element of **lst**

- (3) [2 points] Write a statement to check if **lst** has a value 30 in it or not (Display True or False as result)

- 3) [2 points] Assume you are given two python programs **Greet.py** and **TestGreet.py**. They are at the same directory and have lines as below.

Greet.py

```
def greet():
    print("Good morning")

def greetName(name):
    print("Good morning",name)

def greetTwice():
    print("Good morning")
    print("Good morning")
```

TestGreet.py

```
import Greet

_____#Blank_____
```

Please call one function defined in **Greet.py** and display a message "Good morning everyone".

- 4) [3 points] Read following program. Which line has error? How to correct it?

```
1  def function():
2      x = 4.5
3      y = 3.4
4      print(x)
5      print(y)
6
7  function()
8  print(y)
```

(1) [1 point] The line # with error _____

(2) [2 points] How to correct it? _____

Part 3 – Software Development [50 points]

- 1) [14 points] Write a program that prompts the user to enter a string and then count number digits from the entered string.

Enter a string: <code>cis3260</code> String <code>cis3260</code> contains 4 digits

A. [2 points] System Analysis: What is(are) the input(s) and output(s)?

Input(s) : _____

Output(s) : _____

B. [2 points] The string method **`isdigit()`** checks if a given string consists of only digits or not. If variable **`c`** stores a single character, how to test if this character is digit or not? Please write down a Boolean expression in Python.

C. [4 points] System Design: List the steps to get output(s) from input(s)

D. [6 points] Write your program and put your source code here.

- 2) [17 points] Suppose you are developing a tool to help people to obtain the leap years between a year range. Write a program that asks user to enter the start(inclusive) and end(inclusive) year, then displays all the leap years between the entered range.

```
Enter start year: 2001
Enter end year: 2030
The leap years between 2001 and 2030 are
2004, 2008, 2012, 2016, 2020, 2024, 2028
```

Note: A year is a leap year if either of the following conditions is satisfied:

- The year is multiple of 400.
- The year is multiple of 4 and not multiple of 100.

A. [2 points] System Analysis: What is(are) the input(s) and output(s)?

Input(s): _____

Output(s): _____

B. [2 points] Assume a variable **y** stores a year between the given year range. How to write the Boolean expression to check if a year **y** is leap year or not? [In Python]

C. [3 points] A loop will help you complete the program. Please explain why we need to use a loop in this program. [In English]

D. [4 points] System Design: List the steps to get output(s) from input(s).

E. [6 points] Write your program and put your source code here.

- 3) [19 points] Develop a financial software to help analyse the stock prices. The program prompts the user to enter a list of stock prices on the same line, then ask user to enter a list of company names on the new line. After that, it displays the average of stock prices and prints the name(s) of the company with the highest stock price.

```
Enter A list of Stock Prices: 23,100,33.3,40,100
Enter A list of Company Names: App,Ora,Ban,Pea,Wat
The average stock price is 49.26
The highest stock price is 100.0, from Ora, Wat
```

A. [2 points] System Analysis: What is(are) the input(s) and output(s)?

B. [3 points] Assume you would like to use a 1D list **name_list** to store a list of company names. If a variable **s** stores user's input for the company names, how to put the names to the list **name_list** using **s**? Please write down one single line statement. [in Python]

C. [3 points] 1D list will help you complete the program. Please explain why we need to use list in this program. [In English]

D. [4 points] System Design: List the steps to get output(s) from input(s)

E. [7 points] Write your program and put your source code here.

