

Foundations in Business Programming Practice Midterm

Instructor: Nathaniel Hobbs

Student name: _____

Student ID: _____

Student email: _____

- You have 1 hour 20 minutes
- Total: 100 points
- Multiple choice and true/false are worth fewer points

1 Multiple Choice (2 pts each)

1.1

What is the result?

```
len([1,2] + [3,4] + [5])
```

1. 3
2. 4
3. 5
4. Error

1.2

What does the following produce?

```
tuple([1,2,3])
```

1. [1,2,3]
2. (1,2,3)
3. 1,2,3
4. Error

1.3

What is printed?

```
print("A","B","C")
```

1. ABC
2. A B C
3. A,B,C
4. Error

1.4

What does the following test?

```
if x in L:
```

1. If x equals L
2. If x is an index of L
3. If x appears as an element of L
4. If x is greater than L

1.5

Which loop runs until a condition becomes false?

1. for
2. if
3. while
4. def

1.6

What is the value of i after this loop?

```
for i in range(5):  
    pass
```

1. 3
2. 4
3. 5
4. undefined

1.7

Which is a valid dictionary?

1. [1:2,3:4]
2. {1:2,3:4}
3. (1:2,3:4)
4. <1:2,3:4>

1.8

What does continue do?

1. Stops program
2. Ends loop
3. Skips to next iteration
4. Restarts program

2 True/False (2 pts each)

2.1

A Python list can contain both numbers and strings.

2.2

A tuple can be modified after creation.

2.3

range(4) produces four values.

2.4

Functions can return multiple values.

2.5

A dictionary key must be unique.

2.6

break exits only the innermost loop.

2.7

The order of parameters in a function definition matters.

2.8

enumerate returns index-value pairs.

3 Code Tracing (8 pts each)

3.1

What is printed?

```
L = [2,4,6]
```

```
for x in L:  
    print(x//2)
```

3.2

What is printed?

```
s = 0
```

```
for i in range(1,5):  
    s += i
```

```
print(s)
```

3.3

What is printed?

```
def f(a,b):  
    return a+b
```

```
print(f(3,4))  
print(f(5,2))
```

3.4

What is printed?

```
nums=[10,20,30]
```

```
for i,v in enumerate(nums):  
    if i==1:  
        continue  
    print(v)
```

4 Open Ended (12 pts each)

4.1

Write a function called `countOdd` that returns the number of odd integers in a list.

4.2

Write a function called `maxDiff` that takes a list of numbers and returns the difference between the largest and smallest value.

4.3

Write a function called `sumIndices` that takes a list `L` and returns the sum of the values at even indices.

Example:

`[5,10,15,20]` \rightarrow `5 + 15 = 20`