ECE326 – Fall 2019: Week 2 Exercise Questions

1. True or False [1 mark each]

Circle T is true, otherwise circle F for false.

1. Assignment in Python is always by reference.   **T   F**

2. Dynamically typed languages do not perform type checking.   **T   F**

3. `global` keyword is required to read a global variable from inside a function.   **T   F**

2. Multiple Answers [2 marks each]

Pick all answers that are correct. You will lose 1 mark per wrong choice, down to 0 marks.

1. Which of the following operations are allowed inside a pure function?

   (a) Read from a constant global variable
   (b) Read from a static function variable
   (c) Modify a local variable
   (d) Call `print` function to write to console
   (e) Call another pure function

2. In Python 3, `print` returns the string it printed to screen. Which is the following is true?

   (a) `print` is a statement
   (b) `print` is an expression
   (c) you can assign `print` to a variable, i.e. a = print
   (d) you can pass `print` to a function, i.e. foo(print)
   (e) you can assign a value to `print`, i.e. print = 5

3. Short Answers

1. What does this expression evaluate to? **[2 marks]**

```
>> { b : a for a, b in enumerate("HELLO") }
```

2. What slice of the word "washington" will give the result of "ogisw"? (Give answer in the form [i:j:k])

4. Programming Question **[10 marks]**

Write a function `reverse_dict()` that will reverse keys and values such that the original values become the new keys to lists of one or more values that were the original keys. For example:

```
{"bob": 2, "greg": 3, "joe": 2, "tom": 1, "dave": 2, "stu": 3,
 "mike": 5}
```

becomes:

```
{ 1: ["tom"], 2: ["bob", "joe", "dave"], 3: ["stu"],
  5: ["mike"] }
```

The function should return a new dictionary and not modify the existing one.