Test B

Name: _____

Part 1: choose correct answers

1. What is the result of `[1, 2] * 2 + [3]` ?
   a. `[2, 4, 3]`
   b. `[1, 2, 1, 2, 3]`
   c. `[2, 4, 2, 4, 3]`
   d. Error
2. What will this print?

```python
x = 10
def func():
    x = 9
    def other_func():
        nonlocal x
        x = 5
    other_func()
    print(x)

func()
```

```
a. 9
b. 5
c. SyntaxError
d. 10
```

3. Which expressions will result to `True` ?
   a. `float("5") == 5`
   b. `0.1 + 0.95 == 1`
   c. `[] == []`
   d. `bool("") == True`
4. How many iterations will `range(9, 4, -1)` give?
   a. 5
   b. 6
   c. Error
   d. 0
5. What will be printed after running this code?

```python
a = {"a": 1, "b": 2}
a |= {"b": 4}
a.update({"c": 3})
a.pop("a")
print(a)
```

```
a. Error
b. `{'b': 2, 'c': 3}`
c. `{'a': 1, 'b': 2, 'c': 3}`
d. `{'b': 4, 'c': 3}`
```

Part 2: write down your answer

6. How to skip an iteration in loop? When does loop's `else` block will work out?
7. What is the difference between `list` and `tuple` ? Write a few methods that differ between them (at least two for each).
8. Are the type annotations are necessary in function for a signature? What will be signature without it?
9. How to accept many keyword arguments into a function? Give a short example.
10. When does `else` block work out in `try / except` ? Give a short example.

Part 3: write a code

11. Write a function called `group_by_month` that groups dates by month.
    Dates are being passed in format `DAY.MONTH.YEAR` one-by-one through console until `STOP` word passed.
    If passed dates format incorrect your program have to raise `ValueError` .
12. Write a function that changes diagonals in a square matrix.
    For example:

```
[
    [1, 2, 3],  # swap 1 and 3
    [4, 5, 6],
    [7, 8, 9]   # swap 7 and 9
] =>
[
    [3, 2, 1],
    [4, 5, 6],
    [9, 8, 7]
]
```

13. Write a program that finds files with the same name inside of file system.
    File names are passed as a list with possible list inside it. As a result return not unique names across file system.
    For example:

```
["file.txt", "other.txt", ["new.txt", ["file.txt"]]]
# result has to be ["file.txt"] (as a list or set)
```