Name: _____ Andrew Id: _____

15-112 Spring 2020 Quiz 4

Up to 20 minutes. No calculators, no notes, no books, no computers. Show your work!

1. **Code Tracing**: Indicate what the following program prints. Place your answer (and nothing else) in the box next to the code.

   (a) (2 points) CT1

```
c = "quiz"
quiz = []
for x in c:
    quiz = [x] + quiz
print(quiz)
```

   (b) (2 points) CT2

```
def something(s):
    r = ""
    for c in s:
        if c not in r:
            r = r + c
        print(r)
    return "Result: " + r

something("cheese")
```

2. (2 points) **Reasoning Over Code**: Find arguments (the value of s and c) for the following function that makes it return a positive value. Place your answer (and nothing else) in the box below the code:

```
def fun1(s,c):
    x = -1
    for a in s:
        if a == c:
            x = x + 1
    if x <= 3:
        return -1
    return x
```

3. (4 points) **Free Response**: We'll say that an integer is a millish number (coined term) if it is positive, all the digits are less than 5, and the sum of all the digits is an even number.

   Write the function `isMillishNumber(n)` which takes a non-negative integer `n` and return `True` if it is millish and `False` otherwise. Then write `nthMillishNumber(n)` which takes a non-negative integer `n` and returns the nth millish number. `nthMillishNumber(0)` should return 2. The first several millish numbers are: 2, 4, 11, 13, 20, 22, 24, 31, 33, 40, 42, 44, 101, 103, 110, etc.

   Note: Do not use strings, lists, dictionaries, try/except, or recursion on this question.