

CIS 210  
Winter 2014 Final Exam

Your name: \_\_\_\_\_

Total: \_\_\_\_\_ of 65 possible

1. [5 points] What does `q1( )` print? (Recall that `a%b==0` if `b` evenly divides `a`. For example, `8%4==0` but `8%3==2`.)

```
def q1():
    sum = 0
    items = [ 1, 2, 3, 4, 5, 6 ]
    for el in items:
        if el % 3 == 0:
            sum += 1
    print(sum)
```

2. [5 points] What does `q2( )` print? (Recall that `//` is integer division. For example, `5//2==2`.)

```
def xform(ar, f):
    for m in range(len(ar)):
        ar[m] = f(ar[m])

def half(x):
    return x // 2

def q2():
    m = [ 2, 4, 6, 8 ]
    xform(m, half)
    tot = 0
    for el in m:
        tot += el
    print(tot)
```

3. [5 points] What does q3( ) print?

```
def magnitude(n):
    if n > 0:
        return 1 + magnitude( n // 10 )
    else:
        return 0

def q3():
    print(magnitude(1234567))
```

4. [5 points] What does q4( ) print?

```
def scrub(li,m):
    for i in range(len(li)):
        if li[i] == m:
            li[i] = 0

def scrub_all(li, bad):
    for el in bad:
        scrub(li, el)

def q4():
    ar = [ 3, 7, -5, 10, -17, 20 ]
    negs = [ ]
    for item in ar:
        if item < 0:
            negs.append(item)
    scrub_all(ar, negs)
    tot = 0
    for item in ar:
        tot += item
    print(tot)
```





7. [15 points] Finish the function `reformat` below, consistent with the docstring.

```
def reformat(s, fmt):
    """
    Reformat phone number s into pattern fmt.
    Args:
        s is a string, typically of digits.
        fmt is a string in which # is a place-holder for a character from s.
    Returns:
        A string identical to fmt except each # is replaced by one character
        from s, in order.  If s has more characters than fmt has #, the extras
        go at the end.  If s has too few characters, the extra # are discarded.
    Examples:
        reformat("5413464140", "(###) ###-####") = "(541) 346-4140"
        reformat("15413464140", "+# ###.###.####") = "+1 541.346.4140"
        reformat("3464140", "(###) ###-####") = "(346) 414-0"
        reformat("15413464140", "(###) ###-####") = "(154) 134-64140"
    """
```