

Name: _____ Section: ____ Andrew Id: _____

15-110 Fall 2018 Quiz 7

*** 12.5 minutes * No calculators, no notes, no books, no computers. * Show your work when possible!**

1. Free Response: valueCountsInCol(L, c) (dicts/maps) [100 pts]

[Note: This is taken verbatim from hw7]

Write the function `valueCountsInCol(L, c)` that takes a 2d list `L` and an index `c` of a column in `L`, and returns a dictionary mapping each value in the given column of `L` to a count of the number of times that value appears in that column. If there is no such column, return `None`.

For example:

```
L = [ [ 'dog', 'cat', 'cow' ],
      [ 'cat', 'fox', 'cow' ],
      [ 'dog', 'elk', 'pig' ],
      [ 'cub', 'bat', 'pig' ] ]
assert(valueCountsInCol(L, 0) == { 'dog':2, 'cat':1, 'cub':1 })
assert(valueCountsInCol(L, 3) == None)
```

2. **Bonus/Optional: Code Tracing [2.5 pts each]:**

Indicate what the following program prints. Place your answer in the box.

```
import string
def bonusCt1(L):
    s = set()
    for v in L:
        try:
            s.add(v)
        except:
            try: s.add(v[0])
            except: s.add(len(v))
    i = d = 0
    for v in s:
        try: i += 10**v
        except: d += (ord(v) - ord('a'))/10
    return i + d
L = list(string.ascii_lowercase[5:10])
print(bonusCt1([L, set(L), 1, set([1,2])]))
```



Indicate what the following program prints. Place your answer in the box.

```
# hint: bin(13) returns the string '0b1101'
def bonusCt2(n):
    result = 0
    for i in range(n):
        s = bin(i)[2:]
        for c in s:
            print(c)
            result += int(c)
    return result
print(bonusCt2(256))
```

