

EXERCISE SET 6 * Answer Sheet *

19 pts.

Due Tuesday, April 19th

Functions

1. (a) Define a function named `sales_tax` that is passed the cost of an item, and returns the sales tax for that item. Assume a sales tax of 6 percent. (2 pts.)

```
def sales_tax(cost):  
    return 0.6 * cost    (return .6 * cost is also correct)
```

- (b) Give one instruction below that adds the sales tax of three items, `item1`, `item2` and `item3`, and assigns the result to variable `total_sales_tax`. (1 pt.)

```
# main  
total_sales_tax = sales_tax(item1) + sales_tax(item2) + sales_tax(item3)
```

- (c) Give a set of instructions that prompts the user for cost of three items, and prints out the total sales tax for the items. The output should look as follows, (3 pts.)

The total sales tax of xxx, xxx and xxx is xxx.

```
# main  
item1 = input('Enter the cost of item 1:')  
item2 = input('Enter the cost of item 2:')  
item3 = input('Enter the cost of item 3:')  
  
total_tax = sales_tax(item1) + sales_tax(item2) + sales_tax(item3)  
print 'The total sales tax of', item1, ',', item2, 'and', item3, 'is', total_tax
```

OR

```
print 'The total sales tax of', item1, ',', item2, 'and', item3, 'is', sales_tax(item1) +  
    sales_tax(item2) + sales_tax(item3)
```

2. (a) Define a function named `sales_tax2` that is passed a list of the cost of items, and returns the total sales tax for the items in the list. (3 pts.)

```
def sales_tax2(items):  
    total_tax = 0  
  
    for k in range(0,len(items)):  
        total_tax = total_tax + sales_tax(items[k])  
  
    return total_tax
```

- (b) Give a set of instructions that prompts the user for the cost of any number of items and prints out the total sales tax for the items. (2 pts.)

```
# main
items = []

item = input('Enter cost of first item:')
while item != 1:
    item = input('Enter cost of the next item (enter -1 when done):')

print 'The total tax for these items is:', sales_tax2(items)
```

3. Define a function named `sales_tax3` that is passed a list of the cost of items, and a particular sales tax rate, and returns the total sales tax for the items in the list. (2 pts.)

```
def sales_tax2(cost, sales_tax)    # new version of function sales_tax
    return sales_tax * cost

def sales_tax3(items, sales_tax):
    total_tax = 0

    for k in range(0,len(items)):
        total_tax = total_tax + sales_tax2(items[k], sales_tax)

    return total_tax
```

4. Define a function `sales_tax4` that is passed a list of sublists of length two as shown below, and computes a six percent sales tax only on the items that are marked as "taxable." Write the code that prompts the user for a list of item, entering both the price and whether the item is tax free or not. Function `sales_tax4` should then be called to display the total tax on the items. (6 pts.)

```
items = [ [12.40, 'taxable'], [32.50, 'tax free'], [46.39, 'taxable'], ....]

def sales_tax4(items):
    total_tax = 0

    for k in range(0,len(items)):
        if items[k][1] == 'taxable':
            total_tax = total_tax + sales_tax(items[k][0])

    return total_tax
```