Your Name: _____ Tutorial Group: MA____

MA1008 Written Quiz 2, Semester 1 Week 9
Answer all questions. Write yours answers in the spaces provided.
Marks are as indicated in the questions.

---

1. Built-in data types in Python include float, int, string, list, tuple and dictionary. They are either mutable or immutable, iterable or not iterable. Place them correctly in the table below. (10 marks)

	Iterable	Not iterable
Mutable		
Immutable		

2. What is printed by the statement below: (10 marks)

```
print([N%2==0 for N in range(5, 12) if N%3!=0])
```

_____

3. What is the value of `V` upon execution of the code below: (10 marks)

```
L = [(1, 2), (3, 4, 5), (6, 7, 8, 9)]
V = 0
for a in L[0]:
   for b in L[2]:
      V += a+b
```

_____
_____
_____

4. Given the dictionary

```
fruits = {1:"apple", 2:"orange", 3:"banana", 4:"cherry"}
```

write a short program to print all the fruits using the key. (10 marks)

_____
_____
_____
_____
_____
_____
_____

5. i. What is the purpose of a return statement in a function? (5 marks)

_____
_____
_____
_____

ii. Can there be multiple return statements in a function? If so, give an example of a situation when multiple return statements appear in a function. (5 marks)

_____
_____
_____
_____

6. An error exists in the code below. Correct it, and state what is printed by the print statement at the end, based on your correction. (10 marks)

```
L = [1, 2, ["3", 4]] _____
L1 = L[1] + L[2]     _____
print(L1[-2])        _____
```

7. Given the function

```
def item_in_list(List, item = 0):
   return List[item]
```

What do the follow lines of code print? (5 marks each)

```
print(item_in_list("List item", -1)) _____

print(item_in_list(123)) _____
```

8. A dictionary called `monthly_rain` is used to record the rainfall in the months in a year, with the month as the key and the rainfall in mm as the value. If the record is up to a part of March so far, the dictionary may look like this:

```
monthly_rain = {"Jan":164.6, "Feb": 132.0, "Mar": 28.7}
```

A function `add_rainfall` has three parameters, the dictionary (`monthly_rain`), the month (`month`) and a float (`rainfall`) for the additional rainfall for the month in mm. The function adds the rainfall to the existing value if the month already exists in the dictionary, otherwise a new key-value pair is created, with the month as the key and the rainfall as the value. This is performed in the Python code below. Fill in the blanks to complete the function. (15 marks)

```
def add_rainfall(monthly_rain, month, rainfall):
  if _____________________ in _____________________:
     _____________________ += _____________________
  else:
     _____________________ = _____________________
```

9. The program below defines a function to find the sum of the numbers in the range `1` to `num`, inclusive. The function is then called in the next statement, and the result printed. But the program contains errors. Rewrite the program correctly. (15 marks)

```
def sum_range(num)
   for a in range(1, num)
      sum =+ a
      return sum

total = sum_range(6.0)
print(total)
```