Name: _____

Student numbder: _____

1. Using the following definitions:
   a = 2.71828
   b = 15
   c = 'xyz'

   What are value **and** type for each of the following epresssions?

   (a) `float(b / 4)`

   ┌───┐
   │   │
   └───┘

   (b) `c + 'abc' * 2`

   ┌───┐
   │   │
   └───┘

   (c) `b / 2.`

   ┌───┐
   │   │
   └───┘

   (d) `int(a * 2)`

2. Which of the following line(s) use(s) correct Python syntax?

   ○ `10 + * 11`

   ○ `100 / +7`

   ○ `(6 * (10 + (5 + 2))`

   ○ `3 ** 7 + 1`

3. Which of the following lines define(s) a list?

   ○ `l = (a, b, c, d)`

   ○ `l = list('abcd')`

   ○ `l = ['1', '6', '7']`

   ○ `l = 7, 4, 2`

4. Which of the following define(s) a dictionary?

   ○ `d = dict([('a', 10), ('b', 5)])`

   ○ `d = {1:  'a', 'x':  1, 10:  'h'}`

   ○ `d = [1:  6, 7:4]`

   ○ `d = (7, 2, 0, 10)`

5. Which of the following define(s) a tuple?

○ t = (10)

○ t = tuple([1, 2, 5, 0])

○ t = None,

○ t = ['a', None, 0]

6. Rewrite the following loop without using range:

```python
def sum(l):
    total = 0
    for i in range(len(l)):
        total += l[i]
    return total
```

7. The following snippet contains an error:

```python
s = 'abcdefg'

for i, c in enumerate(s):
    d[i] = c
```

(a) What is the bug, and which exception or error does it cause?

(b) Rewrite the snippet so that it uses a while-loop in stead of a for-loop.

[blank box]

8. Evaluate the following boolean expressions and write down what they evaluate to.
   (a) `True and False`

   (a) _____

   (b) `False or not True`

   (b) _____

   (c) `(True or False) or (False and True)`

   (c) _____

   (d) `(True and (False or True)) or False)`

   (d) _____

9. Explain the following keywords (in no more than 5 lines):
   (a) `break`

   [blank box]

   (b) `while`

   [blank box]

   (c) `and`

   [blank box]

(d) `def`

10. What is the point of using the following line in a Python program:

```
if __name__ == '__main__':
```

11. The following function takes a list of strings. Read the function and answer the questions below.

```python
def perform_miracle(l):
    o = {}
    for x in l:
        try:
            o[x] += 1
        except KeyError, e:
            o[x] = 1
    return o
```

(a) What does the function do?

(b) Why is the error handling needed?

12. Given the a text file called `data.txt` containing the following lines:

```
# id,temp,precip
0,25.5,0
1,24.2,5
2,20.1,9
3,23.9,11
```

```
4,17.0,8
```

Write a program that reads the file and prints out the lines sorted by increasing temperature. You are allowed to assume there will never be missing data (so you do not need error checking around that). If you need more space than the alloted space, use the reverse side and clearly indicate that you did so.

13. What is the use of the `__init__` member function of a class definition?