EXAMPLES of the types of problems that may be on Midterm 1. (This is NOT a comprehensive practice test, just a sample of problems to give an idea of the test format.)

(0) Given:

```python
>>> x = 0  
# L0
>>> x = x + 1  
# L1
>>> x = x + 2  
# L2
```

What will then be the result when the following Python expressions are evaluated?

```python
>>> type(x)
```

a) 2  
b) 3  
c) float  
d) int  
e) none of these

```python
>>> x
```

a) 2  
b) 3  
c) float  
d) int  
e) none of these

Which lines of code is(are) (an) assignment statement(s)?

a) L0  
b) L0, L1  
c) L1, L2  
d) L0, L1, L2  
e) none

(1) Which are steps in computational problem solving aka programming?

(v) Thoroughly understand task or problem  
w) Use/Develop (an) algorithm(s) to solve the problem  
x) Code the algorithm(s)  
y) Write poetry  
z) Run (execute) a program to achieve desired outcome

a) v  
b) v, w  
c) v, w, x, z  
d) all  
e) none

(2) Which are steps in coding a computer program?

(v) Thoroughly understand relevant algorithm(s)  
w) Design the program  
x) Write the program in a language the computer understands  
y) Document the program  
z) Test/debug the program  
q) Set computer switches

a) q  
b) v, w, x  
c) v, w, x, y  
d) v, w, x, y, z  
e) none
(3) What is the result when the Python expressions are evaluated?

```python
>>> 4 / 2
>>> 4/2
>>> 4 // 2
```

a) 2, 2, 2  
b) 2.0, 2.0, 2.0  
c) 2.0, 0, 2  
d) 2.0, 2.0, 2  
e) none of these

```python
>>> (10 + 5) % 3
>>> 10 + 5 % 3
```

a) 0, 12  
b) 0, 0  
c) 12, 12  
d) 5, 5  
e) none of these

(4) Given:

```python
>>> a = 42
>>> b = a
>>> a = a * 2
```

What is the result when the following Python code is executed?

```python
>>> print(a, b)
```

a) 42, 42  
b) 84, 84  
c) 42, 84  
d) 84, 42  
e) none of these

(5) What is the result when the following Python code is executed?

```python
>>> y
```

a) TypeError  
b) NameError  
c) SyntaxError  
d) IndexError  
e) 'hello'

What is the result when the following Python code is executed?

```python
>>> 9 + ' planets'
```

a) TypeError  
b) NameError  
c) SyntaxError  
d) IndexError  
e) '9 planets'

What is the result when the following Python code is executed?

```python
>>> greeting = 'hello'
>>> greeting[len(greeting)]
```

a) TypeError  
b) NameError  
c) SyntaxError  
d) IndexError  
e) 5
(6) Given:

```python
>>> greeting = 'hello\nCIS 122'
```

What is the result when the following Python code is executed?

```python
>>> greeting
```

a) greeting  

b) 'greeting'  

c) 'hello\nCIS 122'

d) hello  

CIS 122

e) none of these

What is the result when the following Python code is executed?

```python
>>> print(greeting)
```

a) greeting  

b) 'greeting'  

c) 'hello\nCIS 122'

d) hello  

CIS 122

e) none of these

What is the result when the following Python code is executed?

```python
>>> print(greeting[2:4])
```

a) llo  

b) l1  

c) ell  

d) e, l  

e) none of these

What will be returned when the following code is then entered into the Python Shell?

```python
>>> 'greeting'
```

a) greeting  

b) 'greeting'  

c) 'hello\nCIS 122'

d) hello  

CIS 122

e) none of these

What will be returned when the following code is then entered into the Python Shell?

```python
>>> len('greeting')
```

a) 11  

b) 12  

c) 13  

d) 8  

e) none of these

What will be returned when the following code is then entered into the Python Shell?

```python
>>> len(greeting)
```

a) 11  

b) 12  

c) 13  

d) 8  

e) none of these
(7) Which of the following are expressions?

(1) $2 + 4$  
(2) $a = 3$  
(3) $\text{round}(a)$  
(4) $23 - a$

a) $1$, $2$  
b) $3$, $4$  
c) $1$, $3$, $4$  
d) $2$, $3$, $4$  
e) all are expressions

(8) An example of a Python built-in function is

a) $\text{round}$  
b) $\text{min}$  
c) $\text{len}$  
d) all of these  
e) none of these

(9) What is the result of entering the following expressions into the Python shell?

```python
>>> \text{round}(100.1)
```

a) $100$  
b) $100.1$  
c) $.1$  
d) $100.10$  
e) none of these

```python
>>> \text{str}(99)
```

a) $99$  
b) $99.0$  
c) $'99'$  
d) $1100011$  
e) none of these

(10) Given the following Python code:

```python
ttl = \text{input}('how many skittles are there altogether? ')
ttl = \text{int}(ttl)

o = 5
\text{g} = o * 2
y = ttl - (o + g)

\text{print}(o, \text{g}, y, ttl)
```

If the user indicates there are 50 skittles total when asked, what will be printed?

a) $10$, $10$, $30$, $40$  
b) $5$, $25$, $20$, $50$  
c) $5$, $25$, $0$, $0$  
d) $0$, $0$, $0$, $0$  
e) none of these

(11) Given the following Python code, what will be printed?

```python
\text{len}_s0 = \text{len}('')
\text{len}_s1 = \text{len}('s')
\text{len}_s2 = \text{len}('ss')
\text{print}(\text{len}_s0, \text{len}_s1, \text{len}_s2)
```

a) $0$, $1$, $2$  
b) $0$, $0$, $0$  
c) $1$, $1$, $1$  
d) $\text{IndexError}$  
e) none of these