CIS 210 Winter 2018 Midterm 1 Practice Questions

Note: These questions are not a comprehensive study guide! They are given here to provide a sense of the types of questions that may be on the midterm 1 exam.

To prepare thoroughly for the exam you should review projects and project solutions, lab exercises, class notes, and readings from the text.

The exam will be in-class, multiple choice questions (Scantron), along with questions where you will write Python code according to the usual CIS 210 style guidelines. No outside resources are allowed during the exam, with the exception of one index card of handwritten notes.

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

1. >>> type(99.9)
   a) <class 'int'>   b) <class 'float'>   c) <class 'bool'>
   d) <class 'str'>   e) <class 'python'>

2. >>> type(True)
   a) <class 'int'>   b) <class 'float'>   c) <class 'bool'>
   d) <class 'str'>   e) <class 'python'>

3. >>> type('false')
   a) <class 'int'>   b) <class 'float'>   c) <class 'bool'>
   d) <class 'str'>   e) <class 'python'>

4. >>> type(len('hello') == len('goodbye'))
   a) <class 'int'>   b) <class 'float'>   c) <class 'bool'>
   d) <class 'str'>   e) <class 'python'>

5. Given the following:
   >>> id(99.9)
   4298470336
   4298470336 refers to a
   a) Python type   b) Python built-in function   c) memory location   d) None type

6. >>> a = 1200 is an example of a Python
   a) expression   b) assignment statement   c) conditional   d) loop
7. >>> len('CIS 210') is an example of a Python

a) expression  b) assignment statement  c) conditional  d) loop
8. Given the following:

1 - >>> ftemp = 212
2 - >>> ctemp = (ftemp - 32) * 5/9
3 - >>> ctemp = ftemp - 32 * 5/9

The value of ctemp will [??] from line 2 to line 3; The type of ctemp will [??] from line 2 to line 3
a) stay the same/change  b) change/stay the same  c) stay the same/stay the same  d) change/change

9. Given the following Python code, what will be printed in the Shell:

```python
>>> b = 20
>>> a = b + 1
>>> b = 30
>>> a
```

a) 20  b) 21  c) 30  d) 31  e) nothing will be printed

10-11. What will be printed when the following Python code is executed?

```python
yellow_ct = 0
for ctr in range(3):
    yellowCt = yellow_ct + 1
print(yellow_ct)
```

10. a) 0  b) 1  c) 2  d) 3  e) nothing will be printed

11. The code in question 10 does not work as intended. This is due to Python’s

a) static typing  b) dynamic typing  c) strong typing  d) weak typing

12. What are the values of a and b after the following Python code executes:

```python
a = 10
b = 3
t = 0
for i in range(1, 4):
    t = a
    a = i + b
    b = t - 1
```

a) 10, 3  b) 11, 3  c) 6, 10  d) 10, 11  e) 3, 11
13. Order the lines of Python code to implement an accumulator pattern (ignore lack of indents):

1 - p = p * i  
2 - p = 1  
3 - for i in range(10):

a) 1, 2, 3  
b) 2, 3, 1  
c) 3, 1, 2  
d) 3, 2, 1  
e) 2, 1, 3

14. What value is returned when the following Python code is executed:

```python
def qx(n):
    '''(integer) -> ??

    Test function.
    '''
    ctr = 0
    while n > 1:
        n = n // 2
        ctr += 1
    return 'The end.'
```

qx(7)

a) 1  
b) 2  
c) 3  
d) 'The end.'  
e) None

15. What value is returned when the following Python code is executed:

```python
def qx(n):
    '''(integer) -> ??

    Test function.
    '''
    ctr = 0
    while n > 1:
        n = n // 2
        ctr += 1
    return ctr
```

qx(7)

a) 1  
b) 2  
c) 3  
d) 'The end.'  
e) None
16-18. Given the following Python code:

```python
def q16(age, salary):
    '''
    (number, number) -> ??
    Test function.
    >>> q16(18, 5000)
    ??
    return (age < 18) and (salary < 10000)
```

16. Complete the type contract:
   a. number       b. integer       c. float       d. Boolean

17. What value is returned when `q16(18, 5000)` is executed?
   a. 18       b. 5000       c. 5018       d. True       e. False

18. To determine this value, Python evaluated
   a. (age < 18)       b. (age < 18)       c. (salary < 10000)
   (salary < 10000)

19-22. Given the following Python code:

```python
def mysqrt(n, k):
    '''(integer, ??-19) -> ??-19
    Generates an approximate square root of n, a positive number, via an iterative process that runs k times.
    The approximate square root is returned.
    >>> mysqrt(25, 5)
    5.0
    '''
    approx_val = 1
    for ctr in range(k):
        approx_val = .5 * (approx_val + n/approx_val)
    return round(approx_val, 2)
```

mysqrt(25, 5)
19. Complete the type contract:

a. bool/float  
   b. float/None  
   c. integer/integer  
   d. integer/float

20. The first time the for loop executes, the value of k is

a. 0  
   b. 1  
   c. 4  
   d. 5  
   e. k is not defined

21. The first time the for loop executes, the value of ctr is

a. 0  
   b. 1  
   c. 4  
   d. 5  
   e. ctr is not defined

22. After the for loop has finished executing, the value of n is

a. 0  
   b. 1  
   c. 4  
   d. 25  
   e. n is not defined

23-26. Given the following Python code:

```python
1 - def twice(x):
2 - 
3 - ...'''
4 - (int) -> int
5 - 
6 - Return x multiplied by 2.
7 - 
8 - result = y * x
9 - return result
```

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

```python
>>> y = 5 then
```

23. >>> twice(y)

a. 0  
   b. 2  
   c. 5  
   d. 10  
   e. NameError

24. >>> y

a. 0  
   b. 2  
   c. 5  
   d. 10  
   e. NameError

25. >>> x

a. 0  
   b. 2  
   c. 5  
   d. 10  
   e. NameError

26. When the following Python code is executed

```python
>>> z = 10
>>> twice(z)
```

what is the value of x at line 8 of the twice function?

a. 0  
   b. 2  
   c. 5  
   d. 10  
   e. error
27-28. You are given the following Python code:

```python
def square():
    '''() -> None

    Use Python turtle graphics to
draw a square.

    >>> square()
    [draw square on turtle Canvas]
    '''
    for i in range(4):
        fd(100)
        lt(90)

    return None
```

with the assignment to make changes so the function can draw any polygon shape. Some progress has already been made; finish the work:

```python
def poly(s):
    '''(int) -> None

    Use Python turtle graphics to
draw an s-sided polygon.
    >>> ??-27
    [draw square on turtle Canvas]
    '''
    for i in range(??-28):
        fd(100)
        lt(360 / s)

    return None
```

27. a. `poly`  b. `poly()`  c. `poly(4)`  d. `poly(s)`

28. a. 4  b. `s`  c. `ctr`  d. 10
29-30. Given the following Python code:

```python
def q29(s):
    '''
    (??) -> ??
    Test function.
    >>> q29('The quick brown fox')
    5
    >>> q29('Hello, world.')
    3
    '''
    vowels = 'aeiou'
    result = 0
    for i in range(len(s)):
        if s[i] in vowels:
            result += 1

    return result
```

29. Complete the type contract:

a) str/str  b) int/int  c) str/float  d) str/bool  e) str/int

30. Executing this function will

a) Return count of vowels in s.

b) Return count of characters in s.

c) Print count of vowels in s.

d) Print count of characters in s.

e) Causes an infinite loop.