CIS 210 Example Midterm Questions

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

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

The format of the midterm will be multiple choice questions (Scantron), and one or more questions where you will be given a problem specification and write a solution in Python code using CIS 210 style guidelines. If the problem has a posted solution, that is, was assigned as a weekly project, a correct response will be code identical to or very close to the posted solution.

1) Given the following Python code:

```python
def q1(z):
    '''midterm'''
    y = 2
    print(x, y)
    print(z)
    result = y * z
    return result
```

What is the result of executing

```python
>>> x = 10
>>> y = q1(x)
>>> print(x, y)
```

(a) NameError 2
(b) NameError
(c) 10 2
(d) 10 2
(e) 10 2

10 20
10
10

```python
>>> print(z)
```

(a) NameError 2
(b) NameError
(c) 10 20
(d) 10 20
(e) NameError

2) Given the following Python code:

```python
def q2a(x):
    '''midterm'''
    x = x ** 2
    return q2b(x)
```

```python
def q2b(z):
    '''midterm'''
    z = str(z)
    print(z)
    msg = 'the end'
    return msg
```

What is the result of executing

```python
>>> q2a(2)
```

??
3) Interpreted as a decimal number, binary 1000001 is

(a) 1  (b) 33  (c) 65  (d) 130  (e) one million and one

4) Given the following Python code:

```python
1 def isInCircle(x, y, r):
2     '''(number, number, number) -> Boolean
3     Returns True if point (x, y) is in
4     the circle with radius r.
5     >>> isInCircle(0, 0, 1)
6     True
7     >>> isInCircle(.5, .5, 1)
8     True
9     >>> isInCircle(1, 2, 1)
10    False
11    '''
12    d = math.sqrt(x**2 + y**2)
13    isIn = d <= r
14    return isIn
```

What would be the result of changing the code in line 15 to

```python
isIn = (d <= r) == True
```

and then executing

```python
>>> isInCircle(0, 0, 1)
```

(a) no change    (b) will return False    (c) TypeError    (d) NameError    (e) SyntaxError

5-7) Given the following Python code:

```python
def factr(n):
    '''midterm'''
    if n == 0:
        return 1
    else:
        return n * factr(n-1)
```
def facti1(n):
    """midterm ""
    nfact = 1
    for i in range(2, n+1):
        nfact = nfact * i

    return nfact

def facti2(n):
    """midterm ""
    nfact = 1
    i = 2
    while i <= n:
        nfact = nfact * i

    return nfact

What will be the result of executing

5) >>> factr(3)
(a) 6   (b) 3   (c) 2   (d) 1   (e) infinite loop

6) >>> facti1(3)
(a) 6   (b) 3   (c) 2   (d) 1   (e) infinite loop

7) >>> facti2(3)
(a) 6   (b) 3   (c) 2   (d) 1   (e) infinite loop

8-11) Given the following UNTESTED Python code:

def q8(s):
    """midterm ""

    if len(s) != 0:
        prev_char = s[0]
        dup_ct = 1
        high_ct = 1
    else:
        high_ct = 0

    for i in range(1, len(s)):
        if s[i] == prev_char:
            dup_ct += 1
        else:
prev_char = s[i]
if dup_ct > high_ct:
    high_ct = dup_ct
dup_ct = 1

return high_ct

What will be the result of executing
8) >>> q8('abbccdde')
(a) 0   (b) 1   (c) 2   (d) 3   (e) 4
9) >>> q8('abbccddddd')
(a) 0   (b) 1   (c) 2   (d) 3   (e) 4
10) >>> q8('')
(a) 0   (b) 1   (c) 2   (d) TypeError   (e) infinite loop
11) Additional helpful tests should include
    (a) 'effgghhi'   (b) 'a'   (c) 'aaabbc'
    'jkllllmmmm'    (d) 'a'   (e) 'abc'

12-15) Given the following UNTESTED Python code:

def q12(s, c):
    """midterm ""

    ct = 0
    for ch in s:
        if ch == c:
            ct += 1

    return ct

What value will be returned when the following code is executed?
12) >>> q12('abc', 'b')
(a) 0   (b) 1   (c) 2   (d) None   (e) infinite loop
13) >>> q12('abc', 'd')
(a) 0   (b) 1   (c) 2   (d) None   (e) infinite loop
14) >>> q12('abbc', 'b')

(a) 0    (b) 1    (c) 2    (d) None    (e) infinite loop

15) The error in function q12 is a(n) ?? error.

(a) syntax    (b) runtime    (c) logic    (d) documentation    (e) infinite loop

16) Given the following Python code:

locD = {'210': 'PAC 123', '211': 'STB 145'}

def q16(freqD):
    """midterm""

    print('{:<6} {:<9}'.format('NAME', 'ROOM'))

    for pair in freqD.items():
        print('{:<6} {:<9}'.format(pair[0], pair[1]))

    return None

What will be the result of executing

>>> q16(locD)

(a) or (b)

NAME   ROOM    NAME   ROOM    ROOM   NAME
210    PAC 123  211    STB 145  210    PAC 123  (e) (a) or (c)
211    STB 145  210    PAC 123  211    STB 145

17-20) When the following Python code is executed:

>>> s = 'ABC'
>>> myl = ['d', 'e', 'f']
>>> s = s.lower()
>>> myl.append('g')
>>> print(s)
?? – 17
>>> print(myl)
?? – 18
>>> s.capitalize()
>>> myl = myl.append('h')
>>> print(s)
?? – 19
>>> print(myl)
?? – 20
17) What is printed at ?? – 17?
   a) 'abc'   b) 'ABC'   c) 'aBC'   d) 'Abc'   e) None

18) What is printed at ?? – 18?
   a) ['d', 'e', 'f', 'g']   b) ['d', 'e', 'f']   c) ['g', 'd', 'e', 'f']   d) ['g']   e) None

19) What is printed at ?? – 19?
   a) 'abc'   b) 'ABC'   c) 'aBC'   d) 'Abc'   e) None

20) What is printed at ?? – 20?
   a) ['d', 'e', 'f', 'g']   b) ['d', 'e', 'f']   c) ['g', 'd', 'e', 'f']   d) ['g']   e) None

21-24) When the following Python code is executed:

```python
>>> z = [1, 2, 3, 4]
>>> id(z)
4381224136
>>> z.remove(2)
>>> print(z)
?? – 21
>>> id(z)
?? – 22
>>> a = [False, 99.9, 'hi']
>>> b = [False, 99.9, 'hi']
>>> print(id(a) == id(b))
?? – 23
>>> print(a[2] == b[-1])
?? – 24
>>> a.insert(0, 'bye')
?? – 5
```

21) What is printed at ?? – 21?
   a) [1, 2, 3, 4]   b) [1, 3, 4]   c) [1, 2, 4]   d) [1, 4]   e) None

22) What is printed at ?? – 22?
   a) 4381224136   b) 4380207176   c) (a) or (b)   d) True   e) False

23) What is printed at ?? – 23?
   a) 4381224136   b) 4380207176   c) (a) or (b)   d) True   e) False

24) What is printed at ?? – 24?
   a) False   b) 99.9   c) 'hi'   d) True   e) None
25-29) Given the following Python code:

```python
def q25_a(x):
    """midterm""
    y = q25_b(x)
    print(x)
    print(y)
    return None

def q25_b(x):
    """midterm""
    y = x.pop()
    return y

x = ['CIS210', 'CIS211', 'CIS212']
```

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

```python
>>> q25_a(x)
?? – 25
>>> z = x.copy()
>>> q25_a(z)
?? – 26
>>> print(x)
?? – 27
>>> print(z)
?? – 28
>>> print(y)
?? – 29
```

25) What is printed at ?? – 25?

- a) ['CIS210', 'CIS211', 'CIS212']
- b) ['CIS210', 'CIS211', 'CIS212']
- c) ['CIS210', 'CIS211']
- d) ['CIS210', 'CIS211']
- e) None

26) What is printed at ?? – 26?

- a) ['CIS210', 'CIS211']
- b) ['CIS210', 'CIS211']
- c) ['CIS210']
- d) ['CIS210']
- e) NameError

27) What is printed at ?? – 27?

- a) ['CIS210', 'CIS211', 'CIS212']
- b) ['CIS210', 'CIS211']
- c) ['CIS210']
- d) []
- e) NameError
28) What is printed at ?? – 28?  
   a) ['CIS210', 'CIS211', 'CIS212']  
   b) ['CIS210', 'CIS211']  
   c) ['CIS210']  
   d) []  
   e) NameError  

29) What is printed at ?? – 29?  
   a) ['CIS210', 'CIS211', 'CIS212']  
   b) ['CIS210', 'CIS211']  
   c) ['CIS210']  
   d) []  
   e) NameError  

30-31) Given the following Python code:

```python
def q30(li, cond):
    '''midterm'''
    result = []
    for elem in li:
        if cond(elem):
            result.append(elem)
    return result

def q30a(n):
    '''midterm'''
    return n % 2 == 0

def q30b(n):
    '''midterm'''
    return n > 0

numbers = [21, -5, -87, 3, 242, -7, -1, 2345]

30) What is the result of executing >>> len(q30(numbers, q30a))
   a) 0  
   b) 1  
   c) 2  
   d) 3  
   e) 4  

31) What is the result of executing >>> len(q30(numbers, q30b))
   a) 0  
   b) 1  
   c) 2  
   d) 3  
   e) 4  

32) What is the result of executing >>> print('{}' .format('The end.'))
   a) {}  
   b) end The.  
   c) The end.