No outside resources are allowed during the exam, with the exception of one index card of handwritten notes.

Given the following Python code:

```python
>>> x = 5 * 2
>>> x
```

(1) `>>> x = 5 * 2` is a Python

a) expression  b) assignment statement  c) built-in function

d) user-defined function  e) error message

(2) `>>> 5 * 2` is a Python

a) expression  b) assignment statement  c) built-in function

d) user-defined function  e) error message

(3) What is value is returned and printed in the Shell when `x` is evaluated?

a) `x`  b) 10  c) 10.0  d) 25  e) none of these

(4) What is the type of `x`?

a) integer  b) float  c) string  d) function  e) all of these

(5) Which of these Python code snippets is NOT correct?

(a) ```
    >>> 10 / 4
    2.5
```

(b) ```
    >>> 4 ^ 2
    16
```

(c) ```
    >>> 14 // 4
    3
```

(d) ```
    >>> 14 % 4
    2
```

e) none are correct
(6-8) After the following Python code is executed

```python
>>> a = 101
>>> b = a
>>> c = b // 10
>>> a = a + 1
```

(6) What is the value of a

a) 10  b) 10.0  c) 11  d) 101  e) 102

(7) What is the value of b

a) 10  b) 10.0  c) 11  d) 101  e) 102

(8) What is the value of c

a) 10  b) 10.0  c) 11  d) 101  e) 102

(9) What is the result when the following Python expression is evaluated?

```python
>>> 1 / 3 * 15
```

a) 0  b) .022  c) 5  d) 5.0

(10) What is the result when the following Python expression is evaluated?

```python
>>> 1 // 3 * 15
```

a) 0  b) .022  c) 5  d) 5.0

(11) What is the result when the Python expressions are evaluated?

```python
>>> 10 // 2 + 4
>>> (10 // 2) + 4
```

a) same result: 9  b) same result: 1  c) same result: 0  d) different results: 9, 1  e) different results: 1, 9
(12) Given the following Python code, what is printed?

```python
a = 10
b = 20
a = b
b = 15
print(a, b)
```

a) 10, 10  b) 15, 15  c) 10, 15  d) 20, 15  e) none of these

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

```python
>>> check
```

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

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

```python
>>> 4 $ 3
```

a) TypeError  b) NameError  c) SyntaxError  d) 4  e) 3

(15) Which of the following is/are a(n) valid Python assignment statements? (You may assume that all variables have been previously defined.)

1. \( x + 1 \)  
2. \( s \)  
3. \( \text{ans-in-$s$} = 3 \)  
4. \( 2 = 1 + 1 \)  
5. \( x == 5 \)

a) 1, 2  
 b) 3, 4, 5  
 c) 2, 5  
 d) 4, 5  
 e) none are valid assignment statements

(16) What will be printed after the following Python code is executed?

```python
y = 3.14
z = abs(round(y))
print(y, z)
```

a) 3.14, 3.14  
 b) 3, 3  
 c) 3.14, 3  
 d) 3, 3.14  
 e) none of these
A customer at the Duck Store has purchased a package of Skittles candy and is counting up the number of skittles for each different color (orange, green, purple, red, and yellow). Fortunately, the customer knows some secret skittle rules that will make the job easier:

- there are 100 skittles total in each bag
- there are twice as many green skittles as orange skittles
- there are as many purple skittles as orange and green skittles combined
- there are half as many red skittles as purple skittles

The customer counts ten orange skittles in this bag. The following Python code should help with the remaining calculations.

```python
# Python code
ttl = 100
orange = 10
green = orange * 2
purple = orange + green
red = purple // 2
yellow = ttl - orange - green - purple - red
print(orange, green, purple, red, yellow)
```

What is the value of each variable after the above Python code has been executed?

(17) orange

a) 10    b) 15    c) 20    d) 25    e) 30

(18) red

a) 10    b) 15    c) 20    d) 25    e) 30

(19) Given a credit card balance, determine the minimum payment by

1. calculate 2.1% of the balance
2. choose the greater of the amount calculated in step (1) and 10
3. choose the lesser of the amount calculated in step (2) and the credit card balance
4. the minimum payment is the amount calculated in step (3)

is an example of

a) a computer program    b) Python    c) an algorithm    d) all of these
(20-26) **Given** the following Python code:

```python
def example(n):
    
    midterm function

    >>> example(99)
    1
    
    print(n % 2)

    return
```

(20) What is the name of this function?

a) `def`  

b) `example`  

c) `n`  

d) `example(n)`

e) none of these

(21) What is/are the function parameter(s)?

a) `def`  

b) `example`  

c) `n`  

d) `def` and `n`

e) none of these

(22) `def` is an example of a Python

a) primitive element  

b) identifier  

c) keyword

d) built-in function  

e) all of these

(23) `2` is an example of a Python

a) primitive element  

b) identifier  

c) keyword

d) built-in function  

e) all of these

(24) `def example(n):` is the

a) file header  

b) function body  

c) docstring  

d) function header

(25) `''
    midterm function

    >>> example(99)
    1
    ''`

is the

a) file header  

b) function body  

c) docstring  

d) function header
(26) Which of these will cause the function to be executed?

a) example  

b) example()  

c) example(3)  

d) example(3, 4)  

e) example(n)  

(27-30) Given the following Python code:

```python
1 def tconvert(tf):
2     '''
3     convert Fahrenheit temperature, tf, to
4     corresponding Celsius temperature
5     >>> tconvert(212)
6     100.0
7     '''
8     tc = (tf - 32) * 5 / 9
9     print(tc)
10    return
```

(27) Local variables in `tconvert` include

a) `tf`, `tc`  

b) `return`, 32  

c) `tconvert`, `float`  

d) `print`  

e) `none of these`  

(28) Python built-in function(s) called in `tconvert` include

a) `tf`, `tc`  

b) `return`, 32  

c) `tconvert`, `float`  

d) `print`  

e) `none of these`  

(29) When the following code is executed

```python
>>> tconvert(212)
```

The value 212 is a(n)

a) parameter  

b) argument  

c) identifier  

d) keyword  

e) `NameError`  

(30) The value of `tf` at line 8 is

a) 0  

b) 32  

c) 212  

d) `tf`  

e) `NameError`
(31) Suppose the cover price of a book is $24.95, but bookstores get a 40% discount. Shipping costs $3 for the first copy and 75 cents for each additional copy. What is the total wholesale cost for 60 copies?

The following lines of Python code will solve the problem, but some of the code is scrambled.

def books():
    '''
    Downey p. 19
    '''
    cover_price = 24.95
    discount = .4
    ship_first = 3
    ship_rest = .75
    num_books = 60

    # scrambled code starts here
    # scrambled code ends here
    return

    # scrambled code starts here
    ttl_cost = round(ttl_cost, 2)
    cost_first = actual_price + ship_first
    ttl_cost = cost_first + cost_rest
    actual_price = cover_price - (cover_price * discount)
    print('The wholesale cost for', num_books, 'is: ', ttl_cost)
    cost_rest = (actual_price + ship_rest) * (num_books - 1)
    # scrambled code ends here

    Choose the answer that correctly orders the lines of code:

a) 5, 1, 2, 3, 4, 6

b) 4, 2, 6, 3, 1, 5

c) 4, 3, 6, 2, 5, 1

d) 6, 5, 4, 3, 2, 1

1 actual_price = cover_price - (cover_price * discount)
2 cost_first = actual_price + ship_first
3 cost_rest = (actual_price + ship_rest) * (num_books - 1)
4 ttl_cost = cost_first + cost_rest
5 ttl_cost = round(ttl_cost, 2)
6 print('The wholesale cost for', num_books, 'is: ', ttl_cost)
Given the following Python code:

```python
1 def print_greeting():
  
2     '''
3     midterm 1
4     '''
5     print('Hello')
6     print('CIS 122')

7     return

8 def repeat_greeting():
9     '''
10    midterm 1
11    '''
12    print_greeting()
13    print_greeting()

14    return
```

(32) What would be the result of executing `repeat_greeting()`?

<table>
<thead>
<tr>
<th>a)</th>
<th>b)</th>
<th>c)</th>
<th>d)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hello</td>
<td>Hello</td>
<td>Hello</td>
<td>Hello</td>
</tr>
<tr>
<td>Hello</td>
<td>'CIS 122'</td>
<td>'CIS 122'</td>
<td>CIS 122</td>
</tr>
<tr>
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<td>Hello</td>
<td>Hello</td>
<td>CIS 122</td>
</tr>
<tr>
<td>'CIS 122'</td>
<td>'CIS 122'</td>
<td>CIS 122</td>
<td></td>
</tr>
</tbody>
</table>

(33) What lines of code would need to be changed so that the first part of the greeting could be specified when the `print_greeting` function is called, for example, `print_greeting('Hello')` or `print_greeting('Goodbye')`?

a) 1  b) 5  c) 12  d) 13  e) all of these

(34-35) Given the following Python code:

```python
>>> import math
>>> result = math.sqrt(25)
```

(34) `math` is a Python

a) keyword  b) standard library module  c) built-in function  d) expression

(35) `import` is a Python

a) keyword  b) standard library module  c) built-in function  d) expression