There are 25 True/False and multiple choice questions. Each one is worth 4 points.

Answer the questions on the bubble sheet given to you.

Remember to fill in the following bubble card fields:

- student ID: use the 10 digit ID number on your student ID card. DO NOT USE YOUR SOCIAL SECURITY NUMBER! If you forget to write your student ID in the bubble card, you may get a 0.

- Last Name and First Name

- Instructor: put your RECITATION INSTRUCTOR’S LAST NAME given in the table below

- Test/Quiz: put 01

- Course: 177

- Section number: find your recitation section in the table below and put in the bubble card the last column of the table below

<table>
<thead>
<tr>
<th>Recitation section</th>
<th>Time</th>
<th>TA</th>
<th>Section number</th>
</tr>
</thead>
<tbody>
<tr>
<td>R01</td>
<td>Thursday, 7:30 - 8:20</td>
<td>Di Jin</td>
<td>001</td>
</tr>
<tr>
<td>R02</td>
<td>Thursday, 12:30-1:20pm</td>
<td>Vignesh Gouthaman</td>
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</tr>
<tr>
<td>R03</td>
<td>Friday, 7:30-8:20am</td>
<td>Vignesh Gouthaman</td>
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<td>R04</td>
<td>Thursday, 10:30-11:20am</td>
<td>Ajay M S</td>
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<td>R05</td>
<td>Friday, 4:30-5:20pm</td>
<td>Sait Celebi</td>
<td>005</td>
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<tr>
<td>RM6</td>
<td>Friday, 12:30-1:20pm</td>
<td>Ruby Tahboub</td>
<td>006</td>
</tr>
</tbody>
</table>

- Only the answers on the bubble sheet will be counted.

- The questions will be discarded.

This exam contains 18 pages (including this cover page).

Remember to fill in also the fields in the following page (please use capital letters!).
Read all questions and answers carefully! Do not make any assumptions about the code other than those that are clearly stated.
1. What is the result of evaluating the following expression $2 + 3 \times 2 / 3$
   
   A. 8.33
   
   B. 5 ●
   
   C. 4
   
   D. 3.66
   
   E. 6

2. `math.sqrt(a, b)` is the same as `a ** b`?
   
   A. True
   
   B. False ●

3. In order to run the following line,
   ```python
   math.sqrt(10)
   ```
   Which import statement is needed?
   
   A. `import math` ●
   
   B. `from math import *`
   
   C. `from math import sqrt`
   
   D. any of them
   
   E. none of them
4. What is the output of the following python program?

```python
var1 = "Welcome to Python"
if (var1.find("Python") == -1):
    print("True")
else:
    print("False")
```

A. True
B. False

5. For what values of x, y, and z does the following statement evaluate to True?

```python
not(z != 4 and z == 2) and not(y == 0 or x == 3)
```

A. x = 1, y = 0, z = 2
B. x = 3, y = 10, z = 12
C. x = 2, y = 1, z = 3
D. x = 3, y = 1, z = 4
E. x = 0, y = 0, z = 0
6. What is the output of the following python program?

```python
def Bonus(grade):
    grade = grade + 10
    if(grade > 80):
        print("Yeah! I got the bonus!")
    else:
        print("Oops! I missed the bonus!")

def main():
    myGrade = 75
    Bonus(myGrade)
    if(myGrade>80):
        print("Yeah! I got the bonus!")
    else:
        print("Oops! I missed the bonus!")

main()
```

A. Yeah! I got the bonus!
   Oops! I missed the bonus!

B. Oops! I missed the bonus!
   Yeah! I got the bonus!

C. Yeah! I got the bonus!
   Yeah! I got the bonus!

D. Oops! I missed the bonus!
   Oops! I missed the bonus!

E. Yeah! I got the bonus!
7. What is the output of the following python program?

```python
def test():
    x = 5
    if 10 < x:
        print('First')
    else:
        print('Second')
        if 2 > x:
            print('Third')
            print('Fourth')
        print('Fifth')
    test()

test()
```

A. Second
   Fourth
   Fifth *

B. Second
   Fifth

C. First
   Fifth

D. Second
   Third
   Fourth
   Fifth

E. First
8. Given the contents of the text file "a.txt" as:

Jim 25
Alice 78
Tim 90

What is the output of the following python program?

```python
myFile = open("a.txt", "r")
a = myFile.readlines()
print(a)
```

A. Jim 25  
B. Alice 78  
C. Tim 90  
D. ['Jim 25
   Alice 78
   Tim 90']  
E. ['Jim 25', 'Alice 78', 'Tim 90']
9. What is the output of the following python program?

```python
myStr = "Boilermakers"
print(myStr.replace('e', 'E'))
```

A. BoilErmakErs •
B. boilermakers
C. BOILERMAKERS
D. BoilErmakers
E. BoilermakErs

10. What is the output of the following python program?

```python
myString = 'BoilerMakers'
print(myString.split("er"))
```

A. []
B. ['Boil', 'Mak', 's'] •
C. ['Boil', 'Maker', 's']
D. ['Boiler', 'Maker', 's']
E. ['BoilerMakers']
11. What is the output of the following python program?

```python
from graphics import *

win = GraphWin("My window", 300, 300)

cir = Circle(Point(50,50), 10)
cir.draw(win)
for i in range(10):
cir.move(3,5)

print(cir.getCenter().getX(), cir.getCenter().getY())
```

A. 80.0 100.0 •
B. 100.0 80.0
C. 100.0 90.0
D. 90.0 100.0
E. 50.0 50.0
12. What is the output of the following python program?

```python
def myfun(x, y):
    total = x + y
    sub = x - y
    mult = x * y
    return total, sub, mult

def middle(a, b):
    a = a + b
    value = myfun(a, b)
    return value

def main():
    a, b, c = middle(-5, 6)
    print(a, b, c)

main()
```

A. 1 -11 -30
B. 17 5 66
C. 7 -5 6 ⬤
D. -5 6
E. -5
13. What is the output of the following python program?

```python
def mathprob(x, y):
    return x + 4 * y

def main():
    a = 7
    b = 9
    print(mathprob(a, b - 3))

main()
```

A. 20
B. 24
C. 31
D. 36
E. 66
14. Assume F is a file object. What is the difference between Statement 1 and Statement 2?

Statement 1:
X = F.readline()

Statement 2:
Y = F.readlines()

A. No difference
B. The output of Statement 1 is a list while the output of Statement 2 is a string
C. The output of Statement 1 is a string while the output of Statement 2 is a list
D. Statement 2 will produce an error
E. None of the above

15. What is the output of the following python program?

```python
def Add(num):
    num = num + 10
    return num
    num = num + 10
    return num

def main():
    value = 15
    value = Add(value)
    print(value)

main()
```

A. 0
B. 10
C. 15
D. 25
E. 35
16. What is the value of L after executing the following python program?

\[ L = ['a', 'b', 'c', 'x', 'm', 'c'] \]
\[ L \text{. remove('c')} \]

A. ['a', 'b', 'c', 'x', 'm', 'c']
B. ['a', 'b', 'x', 'm']
C. []
D. ['a', 'b', 'c', 'x', 'm']
E. ['a', 'b', 'x', 'm', 'c']

17. What is the output of the following python program?

```python
def myFun (x):
    x = x + 1
    return 10

def myFun2 (y):
    return y + 1

print(myFun(myFun2(myFun(10) )))
```

A. 10
B. 11
C. 12
D. 13
E. 14
18. How many times will the body execute in the following for loop?
   
   ```python
   for i in range(50, 1, -10):
       print(i)
   ```

   A. 4  
   B. 5  
   C. 6  
   D. 7  
   E. 10

19. A function must ALWAYS have a return statement.
   
   A. True  
   B. False  

20. Which of the following lines does not work properly?
   
   A. cir = Circle(Point(100,100), 50)  
   B. rect = Rectangle(Point(50,50), Point(100,100))  
   C. line = Line(Point(50, 50), Point(450, 450))  
   D. point = Point(50, 100)  
   E. win = GraphWin(500, 500, 'My window')  

21. What is the output of the following python program?

```python
def myFun ( a , b , c ):
    if a < c or b > c:
        return c , b , a
    if b > c:
        return a , b , c
    else:
        return b , c , a

print (myFun(40,30,10))
```

A. None  
B. 10, 30, 40  
C. 40, 10, 30  
D. 10, 40, 30  
E. 30, 10, 40
22. The execution of the following python program gives an error.

```python
Mylist = [10, 20, 30, 40]
for index in range(0, 5):
    print(Mylist[index])
```

A. True ●
B. False

23. What is the output of the following statement?

```python
list(range(-3, 2))
```

A. [-3, -2, -1, 0, 1] ●
B. [-3, -2, -1, 0, 1, 2]
C. [-3, -2, -1, 0]
D. [-2, -1, 0]
E. [-1, 0, 1]
24. What is the output of the following python program?

```python
myString = "Perfectionist"
print(myString[3:10])
```

A. fection
B. fectioni
C. rfection
D. rfectioni
E. None of the above

25. Items in a list must all be of the same type.

A. True
B. False