

CS177 Fall 2015
Midterm 1
Wed 10/07 6:30p - 7:30p

- There are 25 multiple choice questions. Each one is worth 4 points.
- Answer the questions on the bubble sheet given to you. Only the answers on the bubble sheet will be graded.
- No questions in the exam.
- Programmable calculators cannot be used.
- This exam contains 17 pages (including this cover page)

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.
- Last Name and First Name
- Test/Quiz: 001, Course: 177
- Instructor: Your recitation TA's last name. Find it in the table below.
- Section number: Your "Recitation Section Number". Find it in the table below.

Recitation	Time	TA	Recitation Section Number
R01	Friday, 8:30-9:20am	Mohamed Zahran	0001
R02	Friday, 3:30-4:20pm	Di Jin	0002
R03	Thursday, 7:30-8:20am	Miguel Villarreal-Vasquez	0003
R04	Thursday, 3:30-4:20pm	Sait Celebi	0004
R05	Friday, 4:30-5:20pm	Ruby Tahboub	0005
R06	Friday, 11:30-12:20pm	Ajay M S	0006

Recitation Section Number: _____

Student Last Name: _____

Student First Name: _____

1. Which is the most appropriate data type to store the value of pi in Python?

- A. int
- B. float**
- C. string
- D. boolean
- E. irrational

2. What is the output of the following Python program?

```
def goldBlack(n):  
    for x in range(n):  
        print('All Hail Our Own Purdue')  
    return
```

```
repeat = 3  
goldBlack(repeat)
```

- A. All Hail Our Own Purdue**
- B. All Hail Our Own Purdue
All Hail Our Own Purdue
All Hail Our Own Purdue
- C. All Hail Our Own Purdue
All Hail Our Own Purdue
All Hail Our Own Purdue
All Hail Our Own Purdue
- D. 3
- E. Error

3. Given the contents of the text file "data.txt" as:

```
a , b
5 10
20 15
```

What is the output of the following Python program?

```
def main() :
    myFile = open('data.txt', 'r')
    x = myFile.readline()
    x = x.split(',')
    y = myFile.readlines()
    for i in range(len(y)):
        t = y[i].split(' ')
        m = list(range(int(t[0]), int(t[1])))
        m.append(x[i])
    print(m)
```

main()

- A. [5, 6, 7, 8, 9, 'a']
- B. [5, 6, 7, 8, 9, 'a']
[20, 19, 18, 17, 16, 'b\n']
- C. [5, 10, 'a']
[20, 10, 'b\n']
- D. ['a', 5, 6, 7, 8, 9]
['b\n']
- E. [5, 6, 7, 8, 9, 'a']
['b\n']

4. Which of the following Python programs is the correct way of printing the value of mathematical expression 5 factorial (5!)?

A. `print(fact(5))`

B. `print(sys.factorial(5))`

C. `print(factorial(5))`

D. `import math
print(math.factorial(5))`

E. `from math import *
print(math.factorial(5))`

5. What is the output of the following Python program?

```
def fun(n, m):  
    return m - n
```

```
x = fun(fun(1, 2), 3)  
print(x)
```

A. -1

B. 0

C. 1

D. 2

E. 3

6. The following Python program prints 1000 on the screen.

```
import math
print(math.pow(10,3))
```

Which of the following Python program is the correct implementation of `power(a,b)` function using simple loops? (Assume `a` and `b` are positive integers.)

- A.

```
def power(a,b):
    a = 0
    for i in range(b):
        a = a * b
    return a
```
- B.

```
def power(a,b):
    result = 1
    for i in range(1,a):
        result = result * b
    return result
```
- C.

```
def power(a,b):
    result = 1
    for i in range(a):
        result = result * b
    return result
```
- D.

```
def power(a,b):
    result = 1
    for i in range(1,b):
        result = result * a
    return result
```
- E.

```
def power(a,b):
    result = 1
    for i in range(b):
        result = result * a
    return result
```

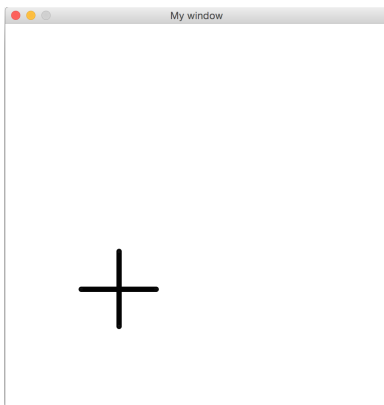
7. What is the output of the following Python program?

```
from graphics import *

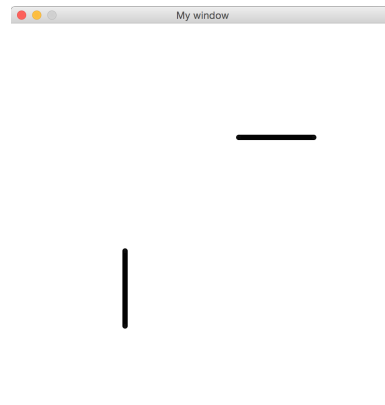
win = GraphWin('My window', 500, 500)
for i in range(100,200):
    win.plot(i, 150)
for i in range(100,200):
    win.plot(150, i)

win.getMouse()
win.close()
```

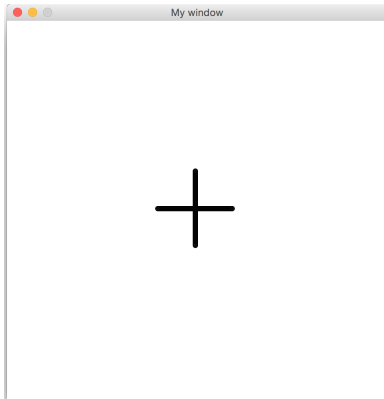
A.



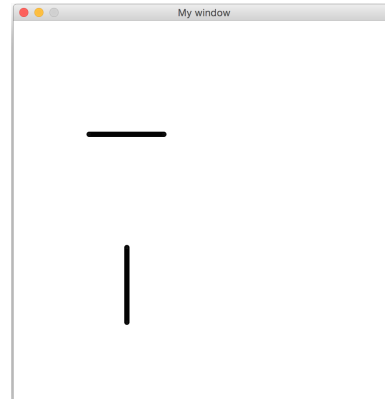
B.



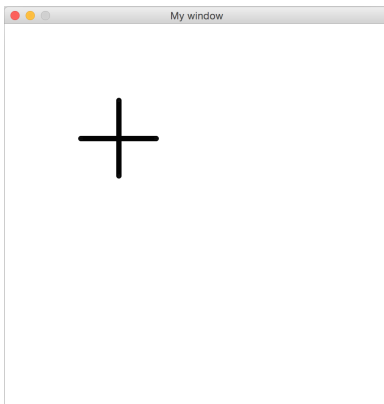
C.



D.



E.



8. We have the following Python program,

```
from graphics import *

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

circle = ?
line1 = ?
line2 = Line( Point(90,230) , Point(150,150) )
line3 = Line( Point(210,230) , Point(150,150) )

circle.draw(win)
line1.draw(win)
line2.draw(win)
line3.draw(win)

win.getMouse()
win.close()
```

The output of the above Python program is:



(See the next page...)

What should be circle and line1 to have the above output?

- A. `circle = Circle(Point(150,150), 300)`
`line1 = Line(Point(150,150), Point(150,150))`
- B. `circle = Circle(Point(150,150), 150)`
`line1 = Line(Point(150,100), Point(150,200))`
- C. `circle = Circle(Point(200,200), 100)`
`line1 = Line(Point(200,50), Point(200,250))`
- D. `circle = Circle(Point(150,150), 100)`**
`line1 = Line(Point(150,50), Point(150,250))`
- E. `circle = Circle(Point(150,150), 100)`
`line1 = Line(Point(200,50), Point(200,250))`

9. Which line in the following Python program will cause an error? (Assume `graphics` library is installed properly.)

```
from graphics import *
win = GraphWin("My Window", 200, 200)
rect = Rectangle(Point(50,50), Point(150,150))
Rectangle.draw(win)

win.getMouse()
```

- A. **from** graphics **import** *
- B. win = GraphWin("My Window", 200, 200)
- C. rect = Rectangle(Point(50,50), Point(150,150))
- D. Rectangle.draw(win)**
- E. win.getMouse()
10. What is the result of evaluating the following expression $20/2*5-2**4/2$?
- A. -6.0
- B. -2.0
- C. 42.0**
- D. 46.0
- E. 90.0

11. What is the output of the following Python program?

```
def funnyFunction(a):  
    if not(a > 10):  
        return a**3, a**2  
    elif (not(a<9 or False)):  
        return -1, -1  
    else:  
        print(a)  
    return a, a**.5
```

```
print(funnyFunction(3))
```

- A. 27
- B. (27,9)**
- C. 9
- D. (-1,-1)
- E. (3,1.73)

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

```
not((not x>1) or (not y<50))
```

- A. x = 0, y = 49
- B. x = 1, y = 49
- C. x = 2, y = 50
- D. x = 0, y = 51
- E. x = 2, y = 49**

13. What is the output of the following Python program?

```
def fun(v1, v2):
    if(v1 > v2):
        return 1
    else:
        return -9

def main():
    x = 1
    y = 2
    if(fun(x, y)):
        print("The return value is", fun(x, y))
    else:
        print("Nothing is printed")

main()
```

- A. The return value is 1
- B. The return value is -9**
- C. Nothing is printed
- D. The return value is 1
Nothing is printed
- E. The return value is -9
Nothing is printed

14. What is the output of the following Python program?

```
def main():
    z = []
    for i in range(0,5,2):
        x = list(range(i))
        z.append(x)
    print (z)
main()
```

- A. **[[], [0, 1], [0, 1, 2, 3]]**
- B. [[0], [0, 1], [0, 1, 2, 3]]
- C. [[0], [1], [2]]
- D. [[0], [0, 1, 2], [0, 1, 2, 3, 4]]
- E. None of the above

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

```
def main():
    x1 = range(5,20,2)
    x2 = range(x1[-1], x1[0], -3)
    print (list(x2))

main()
```

- A. [20, 17, 14, 11, 8]
- B. [20, 17, 14, 11, 8, 5]
- C. **[19, 16, 13, 10, 7]**
- D. [19, 17, 15, 13, 11, 9, 7]
- E. [19, 16, 13, 10, 7, 4]

16. What is the output of the following Python program?

```
def main():  
    s = 'abcdefg'  
    i = s.find('d')  
    p = s[i:i+3]  
    str = s.split(p)  
    result = str[0]+p.upper()+str[1]  
    print (result)
```

main()

- A. abcDEFg
- B. ABCdefG
- C. abCDEfg
- D. abcdefDEFg
- E. abcDEFdefg

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

```
def main():  
    a = 'Hello'  
    x = []  
    for i in range(0, len(a)):  
        s = a[0:i]  
        x.append(s)  
    print (x)
```

main()

- A. ['', 'H', 'He', 'Hel', 'Hell']
- B. ['H', 'He', 'Hel', 'Hell', 'Hello']
- C. ['Hell', 'Hel', 'He', 'H', '']
- D. ['Hello', 'Hell', 'Hel', 'He', 'H']
- E. None of the above

18. What is the output of the following Python program?

```
def main():  
    s='2,4,6,8,10'  
    c = s[0:len(s):2]  
    print (c)
```

```
main()
```

- A. 246810
- B. 2,4,6,8,
- C. 2,4,6,8,1
- D. 24681**
- E. None of the above

19. What is the output of the following Python program?

```
def roots(d):  
    return d**0.5  
  
def addEmUp(nums):  
    tot = 0  
    for n in nums:  
        tot = tot + roots(n)  
    return tot
```

```
squares = [9, 16, 25, 36]  
result = addEmUp(squares)  
print(result)
```

- A. 16
- B. 18.0**
- C. 20.0
- D. 36.0
- E. Error

20. What is the output of the following Python program?

```
x = list(range(9, 1, -2))
print(x)
```

- A. [9, 8, 7, 6, 5, 4, 3, 2, 1, 0, -1, -2]
- B. [9, 7, 5, 3, 1]
- C. [[9, 7, 5, 3, 1, -2]
- D. [9, 7, 5, 3]**
- E. [9, 8, 7, 6, 5, 4, 3, 2, 1, 0, -2]

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

```
i = 9
outcome = 0
while i >= 3:
    outcome = outcome + i
    i = i - 3

print(outcome)
```

- A. 0
- B. 9
- C. 15
- D. 18**
- E. the loop does not stop

22. What is the output of the following Python program?

```
def test():
    x = 5
    if 10 < x:
        return 'a'
    else:
        return 'b'
        if 20 > x:
            return 'c'
        return 'd'
    return 'e'

print(test())
```

- A. 'a'
- B. 'b'**
- C. 'c'
- D. 'd'
- E. 'e'

23. What is the output of the following Python program?

```
def myConditions(x, y):
    if x<20 and y<45:
        print(x+y)
    elif x<20 and y==45:
        print(y-x)
    elif y>=45:
        print(y)
    else:
        print(x)
```

```
myConditions(18, 45)
```

- A. 63
- B. 27
- 45
- C. 27**
- D. 45
- E. 18

24. What is the output of the following Python program

```
import math
x = abs(math.floor(-3.65))
print(x)
```

- A. -4
- B. -3
- C. 3
- D. 3.5
- E. 4**

25. What is the output of the following Python program?

```
def test(x, y, z):
    if(x < y):
        z = x + y
    elif(y < z):
        x = y + z
    else:
        y = x + z

result = test(1, 2, 3)
print(result)
```

- A. 3
- B. 5
- C. 4
- D. None**
- E. This code produces an error