CS177 Spring 2015

Midterm 2

April 02, 8pm-9pm

- 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 counted.
- The questions will be discarded.
- Programmable calculators cannot be used.
- This exam contains 19 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: 02, 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	Thursday, 07:30 am-08:20 am	Rohit Bhatia	0001
R02	Thursday, 09:30 am-10:20 am	Ruby Tahboub	0002
R03	Friday, 07:30 am-08:20 am	Ajay M S	0003
R04	Friday, 10:30 am-11:20 am	Haining Chen	0004
R05	Friday, 12:30 pm-01:20 pm	Rohit Bhatia	0005
R06	Friday, 02:30 pm-03:20 pm	Adib Rastegarnia	0006
R07	Friday, 04:30 pm-05:20 pm	Sait Celebi	0007
Y01	Distance learning	Wei Chuang	0008

Recitation Section Number: _____

Student Last Name: _____

Student First Name: _____

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

```
def myFunc(matrix):
    x = matrix[0][0]
    for i in range(len(matrix)):
        for j in range(len(matrix[0])):
            if i == j and x < matrix[i][j]:
                x = matrix[i][j]
    print(x)

matrix = [[5, 0, 10, 20],
          [7, 0, 17, 3],
          [3, 4, 9, 15],
          [1, 2, 6, 11]]
myFunc(matrix)
```

A. 0

B. 1

C. 11

D. 17

E. 20

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

```
try:
    a = 1 / 0
except ZeroDivisionError:
    print("ZeroDiv")
except:
    print("DefaultExcep")
else:
    print("Else")
finally:
    print("Finally")
```

A. ZeroDiv

B. Else

C. DefaultExcep

D. ZeroDiv
Finally

E. ZeroDiv
DefaultExcep
Finally

3. For which values of A, B and C does the following statement evaluate to False?

   not (A != C **and** B) **and not** (C == 1 **or** A == 2)

   A. A = 3
      B = False
      C = 4

   B. A = 1
      B = False
      C = 2

   C. A = 5
      B = True
      C = 5

   D. A = 0
      B = False
      C = 2

   E. A = 1
      B = False
      C = A

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

```
def func(list):
    for i in range(4, -1, -1):
        list[i+1] = list[i]
    for i in range(len(list)):
        print(list[i], end=" ")

list = ['A', 'B', 'C', 'D', 'E', 'F']
func(list)
```

A. A B C D E F

B. A B C D E E

C. B C D E F F

D. A A B C D E

E. B B C D E F

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

```
A=['abcde', 'fghij', 'klmno', 'pqrst', 'uvwxyz']
print(A[2][1:])
```

A. fghij

B. k

C. l

D. lmno

E. f

6. Which of the following Python programs will result in an infinite loop?

I.

```
i = 0
while i < 100:
    i = i + 10
    print (i)
```

II.

```
i = 100
while i > 0:
    i = i + 10
    print (i)
```

III.

```
i = 100
while i > 0:
    i = i - 10
    print (i)
```

IV.

```
i = 1
while i <= 100:
    i = i + 10
    print (i)
```

A. I

B. II

C. III

D. IV

E. None of the above

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

```
var = 0
i = 15
while (i > 1 ):
    var = var + i
    i = i - 6
print(i, var)
```

A. 3 27

B. -3 27

C. -3 21

D. -3 33

E. 3 33

8. How many times is `j` printed in the following Python program?

```
for i in range(5):
    for j in range(i):
        print( j)
```

A. 1

B. 3

C. 6

D. 10

E. 15

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

```
A=[[1,2,3],[4,5,6],[7,8,9]]
for i in range(len(A[0])):
    for j in range(len(A)):
        A[j][i] = -A[i][j]
print(A)
```

A. [[-1, -4, -7], [-2, -5, -8], [-3, -6, -9]]

B. [[-1, 2, 3], [4, -5, 6], [7, 8, -9]]

C. [[1, 2, 3], [4, 5, 6], [7, 8, 9]]

D. [[-1, 2, 3], [-2, -5, 6], [-3, -6, -9]]

E. [[3, 2, 1], [6, 5, 4], [9, 8, 7]]

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

```
sumValue = 1
while sumValue < 50:
    sumValue = sumValue *2
print(sumValue)
```

A. 16

B. 32

C. 64

D. 128

E. 256

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

```
def myFunc(x):
    i = 0
    while i < len(x):
        if x[ i ] % 2 == 1:
            print( x[i] )
            break
        i = i + 1

x = [ 0, 2, 3, 5, 6, 9 ]
myFunc(x)
```

A. 0

B. 2

C. 3

D. 5

E. 6

12. Which of the following statements are true:

A. If a break statement is reached in a nested loop, the current loop and all loops containing the current loop are exited.

B. If a break statement is reached in a loop, execution is continued immediately after the break statement.

C. If a break statement is reached in a loop, the loop is exited.

D. If a break statement is reached in a `for` loop, execution is continued with the next iteration of the for loop after incrementing the for loop index variable.

E. A break statement can exit from a function.

13. How many times is the print statement executed in the following program?

```
for i in range(5):
    j = 0
    while True:
        if j > i:
            break;
        print(i*j)
        j = j + 1
```

A. 0

B. 1

C. 15

D. 20

E. 25

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

```
def filter_numbers(numbers,n):
 results = []
 for number in numbers:
        if number % n:
            results.append(number)
 return results

def main():
   results = filter_numbers(range(0, 10), 2)
   print(results)

main()
```

A. [2, 4, 6, 8, 10]

B. [0, 2, 4, 6, 8]

C. [1, 3 ,5, 7]

D. [1, 3, 5, 7, 9]

E. [0, 1, 2, 3, 4, 5, 6, 7, 8, 9]

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

```
def search(numbers):
    found = False
    index = 0

    while index < len(numbers) and  found  == False:
        if (numbers[index]%2 == 0) and (numbers[index]%3 == 0):
            found = True
        else:
            index = index +  1

    return index, numbers[index]

print(search(range(2, 9)))
print(search(range(10, 16)))
```

A. **(4, 6)**
(2, 12)

B. (3, 5)
(1, 12)

C. (3, 5)
(2, 12)

D. (4, 6)
(1, 12)

E. (1, 3)
(5, 15)

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

```
def mix(num, word):
    if word[2] == 'r':
        return 2 * num
    elif num > 10:
        return (word + word)
    elif word[0:2] == "CS":
        return (4 == 5)

def main():
    print(mix(15, 'Purdue'))
    print(mix(10, 'CS177'))

main()
```

A. PurduePurdue
False

B. PurduePurdue
True

C. PurduePurdue
PurduePurdue

D. 30
True

E. 30
False

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

```
def Test(s):
    wordsList = s
    newS = ""
    for i in range(len(wordsList) - 1 , -1, -1):
        if i > 0:
            newS = newS + wordsList[i]
        else:
            newS = newS + wordsList[i]
    return newS

def main():
    print(Test("Purdue"))
main()
```

A. Purdue

B. eudruP

C. eudru

D. urdue

E. udruP

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

```
number = 25
isPrime = True
i = 2
while i < number and isPrime:
    if number % i == 0:
        isPrime = False
    i += 1
print("i is", i, "isPrime is", isPrime)
```

A. i is 5 isPrime is True

B. i is 5 isPrime is False

C. i is 2 isPrime is True

D. i is 6 isPrime is True

E. i is 6 isPrime is False

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

```
def hcf(x, y):
    if x > y:
        smaller = y
    else:
        smaller = x

    for i in range(1,smaller + 1):
        if((x % i == 0) and (y % i == 0)):
            hcf = i
    print(hcf)

def main():
    hcf(15,35)

main()
```

A. 3

B. 4

C. 5

D. 9

E. 12

20. Which of the following Python program will print 'Woof woof!!' on the screen?

```
class Dog:
    def __init__(self, name):
        self.name = name

    def bark(self):
        print('Woof woof!!')
```

A. `bark()`

B. `Dog.bark()`

C. **`d = Dog('golden')`**
`d.bark()`

D. `d = Dog()`
`d.bark()`

E. `d = Dog()`
`d.bark(d)`

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

```
class Car:
    def __init__(self, color, model):
        self.color = color
        self.model = model

    def update(self, color, model):
        color = color
        self.model = model

    def printCar(self):
        print('This is a '+self.color+' '+self.model + '.')

car1 = Car('red','Ferrari')
car1.update('blue', 'Porsche')
car1.printCar()
```

A. **This is a red Porsche.**

B. This is a blue Porsche.

C. This is a red Ferrari.

D. This is a blue Ferrari.

E. Error

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

```
class Account:
    def __init__(self, id):
        self.id = id
        id = 666
        id = self.id + id

acc = Account(123)
print(acc.id)
```

A. 0

B. 123

C. 666

D. 789

E. Error

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

```
class A:
    def __init__(self):
        print("In __init__")

    def getNumber(self, number, str):
        self.number = number + 1
        self.str = str.capitalize()
        return "INIT"


a = A()
var = getNumber(a, 10, "number")
print(var.number)
print(var.str)
```

A. The program does not run and gives an error straight away

B. The program first prints "In __init__" and then throws an error

C. The program gives NameError: number and str not defined

D. 11
number

E. 11
Number

24. Which of the following statements is correct for the following Python program (the intended behavior is that it prints the string "Welcome")?

```
class A:
    def __init__(self,s):
        self.s = s

    def myPrint(self):
        print(s)

a = A("Welcome")
a.myPrint()
```

A. The program doesn't run as expected because class A does not have a constructor.

B. The output of the above program is "Welcome", that is, it runs as expected

C. The program doesn't run as expected because class A should have the myPrint function defined as:

```
def myPrint(self,s):
    print(self+s)
```

D. The program doesn't run as expected because class A should have the myPrint function defined as:

```
def myPrint(s):
    print(s)
```

E. The program doesn't run as expected because class A should have the myPrint function defined as:

```
def myPrint(self):
    print(self.s)
```

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

```
import random

def coinToss(number):
    heads = 0
    tails = 0
    for i in range(number):
        flip = random.randint(1,2)
        if(flip == 1):
            heads = heads + 1
        else:
            tails = tails + 1
    return heads,tails


def main():
    heads,tails = coinToss(10)
    print(heads)
    print(tails)

main()
```

A. 5
   5

B. 4
   6

C. 6
   4

D. 7
   3

E. Any of the above 4 outputs is possible