There are 25 single choice questions. Each one is worth 4 points. The total score for the exam is 100. Answer the questions on the bubble sheet given to you.

Remember to fill in the following bubble sheet 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

- **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 scantron file the last column of the table below*

<table>
<thead>
<tr>
<th>Rec. section</th>
<th>Day &amp; time</th>
<th>Rec. Instructor</th>
<th>Sec. number to be used in the scantron card</th>
</tr>
</thead>
<tbody>
<tr>
<td>R09</td>
<td>T 7:30</td>
<td>Shen, Bin</td>
<td>0001</td>
</tr>
<tr>
<td>R02</td>
<td>T 10:30</td>
<td>Jain, Rajul</td>
<td>0002</td>
</tr>
<tr>
<td>R04</td>
<td>T 12:30 PM</td>
<td>Fang, Youhan</td>
<td>0003</td>
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<tr>
<td>R10</td>
<td>T 1:30 PM</td>
<td>Fang, Youhan</td>
<td>0003</td>
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<tr>
<td>R03</td>
<td>T 3:30 PM</td>
<td>Jain, Rajul</td>
<td>0002</td>
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<tr>
<td>R05</td>
<td>T 4:30 PM</td>
<td>Fang, Youhan</td>
<td>0003</td>
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<td>R08</td>
<td>W 7:30</td>
<td>Shen, Bin</td>
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<td>R01</td>
<td>W 9:30</td>
<td>Shen, Bin</td>
<td>0001</td>
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<td>RM1</td>
<td>W 10:30</td>
<td>Dai, Chenyun</td>
<td>0004</td>
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<tr>
<td>R07</td>
<td>W 1:30 PM</td>
<td>Surendra Kumar,Gnana</td>
<td>0005</td>
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<tr>
<td>R06</td>
<td>W 3:30 PM</td>
<td>Surendra Kumar,Gnana</td>
<td>0005</td>
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</tbody>
</table>

- **Exams without names will be graded as zero.**
- Only the answers on the bubble sheet will be counted.
- The questions will be discarded.

Remember to fill in also the fields on page 2 (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. If you are unclear about the question please ask a TA or Instructor.
Question 1:

What base ten number is encoded by the binary number 11011?

a) 27 * 
b) 17 
c) 18 
d) 26

Question 2:

What is the output of the following Python Code?

```python
import math

def myFun(a,b,c):
    x = a**2
    y = math.sqrt(b)
    z = c +1
    return x-y+z

result = myFun(2, 16, 256)
print(result)
```

a) 272.0 
b) 276.0 
c) 256.0 
d) 257.0 *
Question 3:

What is the out of the following Python Code?

def quirkyReturns(a):
    if a < 10:
        return 42
    else:
        return -1
    print(a)
    return a

print(quirkyReturns(10))

a) -1
    10
b) -1
    10
    10
    10
c) -1
    10
d) -1 *
Question 4:
What is the output of the following Python Code?

def funWithConditionals(x, y):
    if x < 10 and y < 35:
        print(x+y)
    elif x < 5 and y == 35:
        print(y)
    elif y >= 35:
        print(x)
    else:
        print(42)

funWithConditionals(9, 35)

a) 42
b) 44
c) 9 *
d) 35
Question 5:

Which of the following Python Programs produce the same output?

I:

```python
for i in range(0,10,2):
    print (i**2)
```

II:

```python
for i in range(10):
    x = i**2
    print(x)
```

III:

```python
for i in list(range(0,10,2)):
    x = i**2
    print(x)
```

IV:

```python
for i in [0,4,16,36,64]:
    print(i)
```

a) I and II  
b) I, III, and IV  
c) I, II, III, and IV  
d) I and III
Question 6:

You love your CS177 class so much you decided to write a program to display your feelings to the world! How many times does the following Python Program print: “I like CS177”?

```python
def trueLove(a, b):
    for x in range(a):
        for y in range(b):
            print("I like CS177")

trueLove(4, 3)
```

a) 12 *
b) 7
c) 4
d) 3

Question 7:

What is the output of the following Python Code?

```python
a = 100
x = 1000
def myFun(a, b):
    x = b - a
    return x
a = myFun(a, x)
x = myFun(a, x)
print(a + x)
```

a) 100
b) 1000 *
c) 1900
d) 900
Question 8:

Which of the following Python Programs results in an error?

I:
import math
a = sqrt(1000)
print(a)

II:
b = 1000
c = 100
b - 900 = c

III:
A = “Hello”
B = “World”
C = A + B

IV:
A = “Hello”
B = “World”
C = A + B + 4

a) II and IV
b) I, II, and III
c) I, II, and IV *
d) I, II, III, and IV
Question 9:

What is the output of the following Python Program?

```python
def tangledInStrings(a, b):
    z = ''
    for x in a:
        z = x + z
    return z + b
print(tangledInStrings("Hello", "World"))
```

a) olleHWorld *
b) HelloWorld
c) olleH World
d) Hello World
**Question 10:**

What is the output of the following Python Code?

```python
def timeToSpin(a, b, c):
    x = a
    y = b
    z = c
    while(x < y):
        x = x - z
        y = y + 1
    print(x + y)

timeToSpin(20, 10, 1)
```

a) 29  
b) 32  
c) 31  
d) 30 *
Question 11:

What is the output of the following Python Code?

def complex(x, y, z):
    if y == z:
        z = x + y
    else:
        return 42
    if z < y:
        return 24
    x = x**2

result = complex(10, 12, 12)

print(result)

a) NONE *
b) This code produces an error and thus has no output
c) 100
d) 24
Question 12:

What is the output of the following Python Code?

```python
X = "Hello"
B = 3*X + "World"*3
print(B)
```

a) This code produces an error and thus has no output  
b) HelloHelloHelloWorldWorldWorld *  
c) HelloWorldHelloWorldHelloWorld  
d) WorldWorldWorldHelloHelloHello
Question 13:

What is the output of the following Python Code?

```python
x = 35
y = 10
def myFun(a, b):
    global x
    x = x + a
    y = 10 + b
    return x + y
result = myFun(20, 30)
print(x + y + result)
```

a) 160 *
b) 140
c) 190
d) 150
Question 14:

What is the output of the following Python Program?

```python
x = "This is a string"
x.upper()
x.lower()
print(x*3)
```

a) the code produces an error  
b) “THIS IS A STRINGTHIS IS A STRINGTHIS IS A STRINGTHIS IS A STRING”  
c) “This is a stringThis is a StringThis is a String” *  
d) “this is a stringthis is a stringthis is a string”
Question 15:

What is the output of the following Python Code?

for x in range(0, 1000):
    if (x % 3 == 0 or x % 4 == 0):
        print(x)

a) all positive numbers divisible by both 3 and 4 and less than or equal to 1000
b) all positive numbers divisible by either 3 or 4 and less than or equal to 1000
c) all positive numbers divisible by both 3 and 4 and less than 1000
d) all positive numbers divisible by either 3 or 4 and less than 1000 *

Question 16:

Which of the following ranges contains three numbers?

a) range(0,4)
b) range(0,5,2) *
c) range(0,2,-1)
d) range(2,0,-1)
Question 17:
What is the output of the following python statement?

```
print("Go Purdue!".find("u"))
```

a) 4 *
b) 5
c) 3
d) 6

Question 18:
Which of the following statements prints an integer?

a) `print(math.sqrt(16))`
b) `print(10/5)`
c) `print(10//5)` *
d) `print(math.sqrt(16.0))`
Question 19:

How many times is the loop body executed for the following code?

A = 0
while(A):
    A = 1

a) 0 times *
b) 1 time
c) the loop is an infinite loop
d) 10 times
Question 20:

Which loops produce the same output?

I:

for x in range(0,10,2):
    print(x)

II:

a = 0
while(a < 10):
    print(a)
    a = a+2

III:

for x in range(0,5):
    print(x*2)

a) I and II
b) II and III
c) I, II, and III *
d) I and III
Question 21:

What is the output of the following python code?

```python
def args(x,y):
    z = x+y
    return z

print(args(1,2,3))
```

a) 5
b) NONE
c) 3
d) the code produces an error *
Question 22:

For what values of $x$, $y$, and $z$ does the following statement evaluation to True?

\[ \text{not}(z != 4 \text{ and } z == 2) \text{ and not}(y == 0 \text{ or } x == 3) \]

a) $x = 1$, $y = 0$, $z = 2$
b) $x = 3$, $y = 10$, $z = 12$
c) $x = 3$, $y = 1$, $z = 4$
d) $x = 2$, $y = 1$, $z = 3$ *
Question 23:

What is the output of the following Python program?

def myFun(x):
    x = x + 1
    x = x*x
    print(x)

y = myFun(4)
print(y)

a) 25
   25
b) 25
c) None
   None
d) 25
   None *
Question 24:

What is the output of the following python program?

def fun1(parm1):
    if parm1 < 0:
        return -1

def fun2(parm2):
    print (parm2)

y = fun1(10)
x = fun2(y)

print(x)

a) -1
   -1
b) -1
   None
c) None *
   None
d) the code produces an error
Question 25:

What is the output of the following python program?

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