CS101 Practice Midterm 1

• Be sure to enter your NetID and the code below on your Scantron.
• Do not turn this page until instructed to.
• There are 30 questions worth 1 point each.
• Each question has only one correct answer.
• You must not communicate with other students during this test.
• No books, notes, or electronic devices allowed.
• This is a 60 minute exam.
• There are several different versions of this exam.

1. Fill in your information:

   Full Name: ____________________________
   UIN (Student Number): ________________________
   NetID: ________________________________

2. Fill in the following answers on the Scantron form:

   95. D
   96. C
1. (1 point) Consider the following program:

```python
x=["tick","tock"]
x[0]="tick" in x
if x[0]:
    x=1
```

What is the type of `x` after the program is run?

(A) None
(B) List
(C) Integer
(D) None of the other answers are correct.
(E) String

2. (1 point) Consider the following program.

```python
def fun(a,b):
    return a-b
x=0
for i in range(1,4):
    x=x+fun(i,x)
```

After it is run, what is the final value of `x`?

(A) 4
(B) 3
(C) 5
(D) None of the other answers are correct.
3. (1 point) Evaluate the following expression:

"+".join("ABABABA".split("A"))

What value is produced?
(A) "+B+B+B+
(B) None of the other answers are correct.
(C) "B+B+B"
(D) "ABABABA"

4. (1 point) Consider the following program:

```python
x=["tick","tock"]
x[0]=x.reverse()
x=x[-2]
```

What is the type of `x` after the program is run?
(A) String
(B) None
(C) None of the other answers are correct.
(D) List
(E) Tuple
5. (1 point) Evaluate the following expression:

\[ \text{len("ABCD[1:3]"}) \]

What value is produced?

(A) 1
(B) 3
(C) 4
(D) 2

6. (1 point) Consider the following program:

```python
s="A,E,I,O,U".split(",")
s=s[0:3]
s=s.sort()
```

What is the value of `s` after this program is executed?

(A) ['A', 'E', 'I', 'O']
(B) ['A', 'E', 'I']
(C) "AEI"
(D) "AEIO"
(E) None of the other answers are correct.
7. (1 point) Evaluate the following expression:

"ABC".join(["A","B","C"])  
What value is produced?  
(A) "ABCABCABC"  
(B) "AABCBABCC"  
(C) "AAABBBCCC"  
(D) None of the other answers are correct.

8. (1 point) Consider the following program:

```
s="CHARIZARD"
x=""
for i in range(0,len(s)):
    if (i>3) and (i<6):
        x+=s[i:i+2]
```

What is the value of x after this program is executed?  
(A) "RI"  
(B) "IZZA"  
(C) None of the other answers are correct.  
(D) "RIIZ"  
(E) "ZA"
9. (1 point) Consider the following program:

\[ s = "GABE&TYCHO" \]
\[ x = s[3:6] \]

What is the value of \( x \) after this program is executed?

(A) "BE&"
(B) "E&"
(C) "E&T"
(D) "BE"
(E) None of the other answers are correct.

10. (1 point) Consider the following program:

\[ s = "SQUIRTLE" \]
\[ x = "" \]
\[ \text{for } i \text{ in range}(0, \text{len}(s)):\]
\[ \quad \text{if } (i>4) \text{ and } (i<7): \]
\[ \quad \quad x += s[i:i+2] \]

What is the value of \( x \) after this program is executed?

(A) None of the other answers are correct.
(B) "RT"
(C) "RRTLLE"
(D) "RTTL"
(E) "TLLE"
11. (1 point) Consider the following program:

```python
s="MEWTWO"
x=""
for i in range(0,len(s)):
    if (i>1) and (i<3):
        x+=s[i:i+3]
```

What is the value of x after this program is executed?

(A) "EWT"
(B) None of the other answers are correct.
(C) "WTWO"
(D) "WTW"
(E) "EWTW"

12. (1 point) Consider the following program:

```python
x=["tick","tock"]
x[0]=(len(list(x[-1])),x[1])
x=x[1]
```

What is the type of x after the program is run?

(A) Integer
(B) None
(C) String
(D) List
(E) None of the other answers are correct.
13. (1 point) Consider the following incomplete function.

```python
def pal(s):
    a=list(s)
    if ???:
        return True
    else:
        return False
```

The function is intended to return True if and only if the input string s is a palindrome. A palindrome is a string that reads the same forward and backward, like “ABBA” or “RACECAR”. What should replace the three question marks to complete the function?

(A) `a.reverse()==a`

(B) None of the other answers are correct.

(C) `a + a == a * 2`

(D) `(len(a) % 2) == 0`
14. (1 point) Consider the following program:

```python
a=1
def fun():
    a=2
    return a+1
fun()
print(a)
```

What is printed out by this program?

(A) 3
(B) 2
(C) None of the other answers. This code is not valid.
(D) 1
(E) 4

15. (1 point) Consider the following program:

```python
x=["tick","tock"]
x[0]=x.sort()
x=x[-2]
```

What is the type of `x` after the program is run?

(A) List
(B) None
(C) Tuple
(D) String
(E) None of the other answers are correct.
16. (1 point) Consider the following incomplete program.

```python
sum=0
i=1
while ???<=1000:
    sum=sum+i*i
    i=i+1
print(sum)
```

The program is intended to sum all of the perfect squares from 1 to 1000 (inclusive) and print the result. What should replace the three question marks to complete the program?

(A) (i*i)
(B) i % sum
(C) (i**0.5)
(D) i % n

17. (1 point) Consider the following program.

```python
x=0
i=1
while(i*i)<=36:
    if (((i*i)%2)==0):
        x+=1
    i=i+1
```

After it is run, what is the final value of x?

(A) 5
(B) 3
(C) 4
(D) None of the other answers are correct.
def only_vowel(s):
    for c in s:
        if ???:
            return False
    return True

The function is intended to return True if and only if the input string s consists entirely of characters representing lower case vowels. For example, only_vowels("iaou") should return True, but only_vowels("eAo2i") should return False, because A is not lower case and 2 is not a vowel. What should replace the three question marks to complete the function?

(A) c.lower() not in "aeiou"
(B) c.lower() in "aeiou"
(C) c not in "aeiou"
(D) c in "aeiou"
19. (1 point) Consider the following program:

```python
a = list("ACCIO")
a.reverse()
a[1], a[2] = a[2], a[3]
x = ""
for e in a:
    x = x + e
```

What is the value of `x` after this program is executed?

(A) "AIICC"

(B) None of the other answers are correct.

(C) "ACCCO"

(D) "OCCCA"

(E) "OIICC"
20. (1 point) Consider the following program:

```python
def fun(a, b):
    for i in range(a, b):
        if (i % 3) == 0:
            return i
    return a == b
```

```python
a = 4
b = 6
print(fun(a, b))
```

What is printed out by this program?

(A) None of the other answers. This code is not valid.

(B) 6

(C) False

(D) 3

(E) True
21. (1 point) Consider the following program:

```python
x=["tick","tock"]
x[-1]=list(x[0])
x=x[1],x[0]
```

What is the type of `x` after the program is run?

(A) None

(B) None of the other answers are correct.

(C) List

(D) Tuple

(E) String

22. (1 point) Consider the following program:

```python
x=["tick","tock"]
x[0]=len(list(x[-1]))
x=x[-2]
```

What is the type of `x` after the program is run?

(A) Integer

(B) None of the other answers are correct.

(C) String

(D) List

(E) None
23. (1 point) Consider the following program.

```python
x=0
i=1
while(i*i)<=49:
    if (i%2)==1:
        x+=1
    i=i+1
```
After it is run, what is the final **value** of `x`?

(A) 4
(B) None of the other answers are correct.
(C) 3
(D) 5

24. (1 point) Which of the following represents a single valid string?

(A) None of the other answers form a single valid string.
(B) "'What has Heathcliff done to you?' I asked. 'In what has he wronged you?'"
(C) "'What's your business here?' he demanded, grimly. 'Who are you?'"
(D) "'I'll not hold my tongue!' I said. 'Let the door remain shut, and be quiet!'"
(E) "'I'll keep him out five minutes,' he exclaimed. 'You won't object?'"
25. (1 point) Evaluating which of the following expressions will produce a value of type list?

(A) `str(["A","B"]).lower()`  
(B) `list("ABC").append("D")`  
(C) `["1","2","3"]+["4"]`  
(D) `len([3333])`

26. (1 point) Consider the following program:

```python
x=str(3*0.4)
```

What is the value of x after this program is executed?

(A) None of the other answers are correct.
(B) "1.2"  
(C) 1.2  
(D) "0"  
(E) 0
27. (1 point) Consider the following program.

```python
def fun(a, b):
    return a - b
x = 0
for i in range(-1, 3):
    x = x + fun(i, x)
print(x)
```

After it is run, what is the final value of x?

(A) 3

(B) None of the other answers are correct.

(C) 2

(D) 4
28. (1 point) Consider the following program:

```python
def fun(a,b):
    if a>b and a!=4:
        return b==5
    else:
        return a==3
a=5
b=4
print(fun(a,b))
```

What is printed out by this program?

(A) True
(B) False
(C) 5
(D) 4
(E) None of the other answers. This code is not valid.
29. (1 point) Consider the following program.

```python
def fun(a,b):
    return a-b
x=0
for i in range(2,5):
    x=x+fun(i,x)
print(x)
```

After it is run, what is the final value of x?

(A) 4  
(B) 3  
(C) None of the other answers are correct.  
(D) 5

30. (1 point) Consider the following program:

```python
a=list("REDUCIO")
a.sort()
a[0],a[1]=a[-2],a[-1]
x=""
for e in a:
    x=x+e
```

What is the value of x after this program is executed?

(A) "OIIDUCIO"  
(B) "IODUCIO"  
(C) None of the other answers are correct.  
(D) "UREIORU"  
(E) "RUEIORU"