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 25 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 45 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) Evaluate the following expression:

"ABC".join(["A","B","C"])

What value is produced?

(A) "AAABBBCCC"

(B) "ABCABCABC"

(C) None of the other answers are correct.

(D) ★

"AABCBABCC"

Solution.
2. (1 point) Consider the following program.

```python
x=0
i=1
while(i*i)<=49:
    if (i%2)==1:
        x+=1
    i+=1
```

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

(A) ★

4

(B) 5

(C) 3

(D) None of the other answers are correct.

Solution.
3. (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) ★

"WTW"

(B) None of the other answers are correct.

(C) "EWT"

(D) "WTW"

(E) "EwTW"

Solution.
4. (1 point) Consider the following program:

```python
s="SQUIRTLE"
x=""
for i in range(0,len(s)):
    if (i>4) and (i<7):
        x+=s[i:i+2]
```

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

(A) "RT"
(B) "RTTLE"
(C) ★
    "TLLE"
(D) None of the other answers are correct.
(E) "RTTL"

Solution.
5. (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']

(B) ★ None of the other answers are correct.

(C) ['A', 'E', 'I', 'O']

(D) "AEI"

(E) "AEIO"

Solution.
6. (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) `(len(a) % 2) == 0`

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

(C) None of the other answers are correct.

(D) ⋆

    `a.reverse()==a`

Solution.
7. (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
```

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

What is printed out by this program?

(A) 6
(B) True
(C) None of the other answers. This code is not valid.
(D) ★ False
(E) 3

Solution.
8. (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 of the other answers are correct.
(C) List
(D) Tuple
(E) ⋆ NoneType (value is None)

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Solution.
9. (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) None of the other answers are correct.
(B) NoneType (value is None)
(C) String
(D) ⋆ Integer
(E) List

Solution.
10. (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) None of the other answers are correct.

(B) 5

(C) 3

(D) 4

Solution.
11. (1 point) Consider the following program:

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

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

(A) ★

"E&T"

(B) None of the other answers are correct.

(C) "E&"

(D) "BE&"

(E) "BE"

Solution.
12. (1 point) Which of the following texts represents a single valid string?

(A) "'I'll not hold my tongue!' I said. 'Let the door remain shut, and be quiet!'"
(B) None of the other answers form a single valid string.
(C) "'What's your business here?' he demanded, grimly. 'Who are you?'
(D) "'I'll keep him out five minutes,' he exclaimed. 'You won't object?"
(E) ★

"'What has Heathcliff done to you?' I asked. 'In what has he wronged you?'"

Solution.
13. (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) ⭐ Tuple
(C) None of the other answers are correct.
(D) List
(E) String

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

Solution.
15. (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) 5

(B) ⋆

4

(C) 3

(D) None of the other answers are correct.

Solution.
16. (1 point) Evaluating which of the following expressions will produce a value of type list?

(A) ★

["1", "2", "3"] + ["4"]

(B) len([3333])

(C) list("ABC").append("D")

(D) str(["A", "B"]).lower()

Solution.
17. (1 point) Consider the following program.

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 \textbf{value} of \(x\)?

(A) None of the other answers are correct.

(B) \(\star\)

2

(C) 3

(D) 4

Solution.
18. (1 point) Consider the following program:

```python
a=list("ACCI0")
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) "OIICC"

(E) ⋆

"OCCCA"

Solution.
19. (1 point) Evaluate the following expression:

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

What value is produced?

(A) 1
(B) 4
(C) 3
(D) ★ 2

Solution.
20. (1 point) Consider the following program:

```python
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) None of the other answers are correct.

(C) ★

   "IZZA"

(D) "ZA"

(E) "RIIZ"

Solution.
21. (1 point) Evaluate the following expression:
"+".join("ABABABA".split("A"))
What value is produced?
(A) "ABABABA"
(B) "B+B+B"
(C) None of the other answers are correct.
(D) ★
"+B+B+B+"

Solution.
22. (1 point) For this problem, you should compose a function which accomplishes a given task using the available code blocks arranged in the correct functional order. *We ignore indentation for this problem.*

`find_min` should accept a list and return the value of the *minimum item* in the list. (We use a large value to initialize our comparison in `min_val`.)

```python
def find_min(my_list):
    min_val = i
    min_val = 1e300
    for i in range(len(my_list)):
        if i < min_val:
            min_val = my_list[i]
    return min_val
    if my_list[i] < min_val:
        for i in range(my_list):
            print(min_val)

(A) 2, 8, 4, 5, 6
(B) ★ 2, 3, 7, 5, 6
(C) 3, 2, 7, 5, 9
(D) 2, 3, 4, 1, 6
(E) 2, 3, 7, 1, 6
```

Solution.
23. (1 point) Consider the following program:

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) False
(B) True
(C) None of the other answers. This code is not valid.
(D) 5
(E) ★ 4

Solution.
24. (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) "UREIORU"

(B) None of the other answers are correct.

(C) "OIDUCIO"

(D) "IODUCIO"

(E) ★

"RUEIORU"

Solution.
25. (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) 3
(B) 4
(C) 5
(D) None of the other answers are correct.

Solution.