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.

```
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) 5

(C) 3

(D) None of the other answers are correct.

Solution.

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3. (1 point) Consider the following program:

```
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) `"WTWO"`

(E) `"EWTW"`

Solution.

---

4. (1 point) Consider the following program:

```
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) `"RTTLLE"`

(C) ★

`"TLLE"`

(D) None of the other answers are correct.

(E) `"RTTL"`

Solution.

---

5. (1 point) Consider the following program:

```
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.

```
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:

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

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:

```
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)

Solution.

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9. (1 point) Consider the following program:

```
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.

```
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:

```
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:

```
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:

```
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.

```
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 **value** of x?

(A) None of the other answers are correct.

(B) ★

```
2
```

(C) `3`

(D) `4`

Solution.

---

18. (1 point) Consider the following program:

```
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) `"OIICC"`

(E) ★

`"OCCCA"`

Solution.

---

19. (1 point) Evaluate the following expression:

```
len("ABCD"[1:3])
```

What value is produced?

(A) 1

(B) 4

(C) 3

(D) ★ 2

Solution.

---

20. (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) 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`.)

```
def find_min(my_list):
```

1 `min_val = i`

2 `min_val = 1e300`

3 `for i in range(len(my_list)):`

4 `if i < min_val:`

5 `min_val = my_list[i]`

6 `return min_val`

7 `if my_list[i] < min_val:`

8 `for i in range(my_list):`

9 `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:

```
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.

```
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.
