

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) ★

"AABCBAABCC"

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.

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) "RTTLE"

(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) ★ None

Solution.

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) 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 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("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) "ACCC0"
- (D) "0IICC"
- (E) ★

"0CCCA"

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+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:

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

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

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

Solution.

26. (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.
