

CS303E Exam 2: Spring, 2025 § Version A
Dr. Bill Young § Friday, October 31, 2025

Number

Name: _____ EID: _____

Read the questions carefully, and answer each question in the space provided. If you like, you can use scratch paper to do your work, but copy your answers neatly and legibly onto the test paper. Only answers recorded on the test paper will be graded. Don't write in the spaces marked "Page Total" or "Grades" at the bottom of this page.

(Tracing Code: 2 points each) Questions 1–5 require you to show the output of some code. For each question, write what's printed by the code segment in the provided box. If nothing is printed or executing the code gives an error, say so.

1.

```
for i in range(9):
    if i%2:
        print(i, end=" ")
```

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2.

```
def g(x):
    print(x, end=" ")
    return x + 1

def f(x, y):
    print(x + y, end=" ")
    return x - y

print(f(g(5), g(3)))
```

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1-4	2-6	4-20	5-10	6-10	Tot-50

```
3. def h(a, b, c=3, d=4):  
    return a * c + b * d  
  
print( h(1, 2) )
```

```
4. s1 = "texas longhorns"[-6::2]  
s2 = ord(chr(15))  
print( s1, s2 )
```

```
5. s1 = "123"  
s2 = "456"  
result = s1 * 2 + s2  
print(result)
```

(Multiple Choice: 2 points each) For questions 6–15 write the letter of the BEST answer in the box on page 4. Only answers copied there will be graded. Please write your answer in UPPERCASE. Each problem has a single answer. But be sure to read all choices before you answer.

6. Consider a loop with structure below. What happens if the `continue` executes?

```
while (condition):  
    <code block A>  
    continue  
    <code block B>
```

- A. code block B executes and the loop terminates
- B. code block B is skipped and the loop terminates
- C. code block B is skipped and execution of the loop resumes at the while
- D. code block B executes and execution of the loop resumes at the while

Only answers copied to page 4 will be graded.

7. What does the `self` parameter in a class definition represent?
 - A. the instance of the class being created
 - B. an attribute of the class
 - C. a method of the class
 - D. a local variable
8. Which of the following, if any, is true of a Python class?
 - A. All data members/attributes of every class are private by default.
 - B. Every class must have an explicit `__str__` method.
 - C. The name of the class is used when defining a new instance of the class.
 - D. Outside the class definition, `self` refers to the most recently defined object of the class.
 - E. All of the above are false.
9. Which of the following best describes what a class' `__str__` method does?
 - A. returns a string description of the class instance
 - B. prints a description of the class instance
 - C. lists the data members of the class
 - D. strangles unauthorized users of the class
10. The default return value of a function is:
A. 0 B. 1 C. False D. None E. "None"
11. What is a possible result from `random.random()`?
A. 0.5 B. 0 C. 1 D. any of A, B, C
12. What value of X would make the following True: (`True and False or X`)
A. False B. True C. neither works D. both work
13. What best describes what the `end` parameter in a print statement does?
 - A. causes printing to terminate
 - B. adds the work "end" between every item printed
 - C. specifies what string prints at the end of the output
 - D. forces printing to go to a new line

Only answers copied to page 4 will be graded.

14. Consider the code:

```
x, y = 10, 5
ans = ( x >= 0 or y < 10 )
```

In computing `ans`, Python will evaluate:

- A. `y < 10` and then `x >= 0`
 - B. `x >= 0` and then `y < 10`
 - C. only `y < 10`
 - D. only `x >= 0`
 - E. none of the above because that assignment is illegal
15. Which built-in function could you use to convert string "12.5" to a float?
- A. `str_to_float()`
 - B. `convert()`
 - C. `float()`
 - D. you cannot do that conversion

**Did you copy the answers to problems 6–15 into the boxes below?
If not, they won't be graded.**

6	7	8	9	10	11	12	13	14	15

16. (**Programming**: 10 points) Your task in this problem is to fill out the `Book` class definition on the next page. Each book should have *private* attributes containing the title (a string), author (a string), and available (a Boolean, defaults to `True`). It should also have methods: `__init__`, `__str__`, `getAuthor`, `checkOutBook`, `returnBook`. Below is some sample behavior:

```
>>> iliad = Book("The Iliad", "Homer")
>>> print(iliad)
The Iliad by Homer is available
>>> iliad.getAuthor()
'Homer'
>>> iliad.checkOutBook()
>>> print(iliad)
The Iliad by Homer is checked out
>>> iliad.returnBook()
>>> print(iliad)
The Iliad by Homer is available
>>>
```

```
class Book:
    def __init__(self, title, author, available=True):

def __str__(self):

def getAuthor(self):

def checkOutBook(self):
    # change book's status to indicate not available

def returnBook(self):
    # change book's status to indicate available
```

17. (**Programming:** 10 points) Complete the function `sumAndAveragePositives` below that sums and averages positive numbers entered by the user. For the average you'll need to keep a count of the numbers entered. You can assume that all user inputs are numbers (float or int). If a number entered is negative, print an error message and continue; don't add it to the sum or count. There can be any number of inputs; stop when the user enters 0 (but don't add that to the count). Print the sum and average as shown below. (If the count is zero, return 0.0 for the average; be careful not to divide by zero.) You don't need to round or format the totals. Continue coding on the next page, if needed. Below are two sample runs:

```
>>> sumAndAveragePositives()
Enter a number: 2.5
Enter a number: 1.5
Enter a number: 7
Enter a number: -5
Positives only.
Enter a number: 3
Enter a number: 0
Sum: 14.0
Average: 3.5
```

```
>>> sumAndAveragePositives()
Enter a number: 0.0
Sum: 0.0
Average: 0.0
```

```
def sumAndAveragePositives():
```

Scratch paper

Scratch paper