

CSCI 1200 Midterm1 Practice

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Instructions

This exam is to be taken in silence, without notes, books, or electronic devices.

The duration of the exam is 45 minutes.

Take your time to read the statements carefully before trying to answer them.

When writing code, make sure your special punctuation characters are legible, and your lowercase and uppercase letters are easy to distinguish.

There are in total 10 questions. Each question contributes 3 points.

Question 1a

Consider the following function.

```
def mean_square(x,y):  
    return (x**2+y**2)/2
```

What is the value of `mean_square(3,5)`?

Question 1b

Complete the following function `mean_square_root` that takes two numbers `x` and `y` and returns the value $\frac{\sqrt{x^2+y^2}}{2}$.

```
def mean_square_root(x,y):
```

Question 2a

Assume an `int` variable named `num` is already initialized to some values. Which of the following values of `num` will result in `num%5==0 or num%7==0` be evaluated to `True`?

Select all that apply.

- ☐ 35
 - ☐ 49
 - ☐ 20
 - ☐ 17
-
-

Question 2b

Assume an `int` variable named `num` is already initialized to some values. Write a statement that will evaluate to `True` only if `num` is even and is greater than 100.

Question 3a

Consider the following function.

```
def letterGrade(score):  
    if score >= 80:  
        return 'A'  
    elif score >= 70:  
        return 'B'  
    elif score >= 60:  
        return 'C'  
    else:  
        return 'D'
```

- (i) What is the value of `letterGrade(100)`?
- (ii) What is the value of `letterGrade(75)`?
- (iii) What is the value of `letterGrade(60)`?

(iv) What is the value of `letterGrade(4)`?

Question 3b

A **leap year** is a **calendar year** that contains an additional day. Let `year` be an integer.

If `year` is divisible by 100, it is a leap year only if it is divisible by 400. If `year` is not divisible by 100, it is a leap year only if it is divisible by 4.

Complete the following function `leap` that takes a parameter `year` as input and returns `True` if `year` is a leap year else return `False`.

```
def leap(year):
```

Question 4a

Consider the following function `test` that takes a string `text` and integer `i` as inputs:

```
def test(text,i):  
    if text[i]==text[-(i+1)]:  
        return text[i+1:-(i+1)]  
    else:  
        return text
```

- (i) What is the value of `test("ababa",0)`?
 - (ii) What is the value of `test("abaca",1)`?
 - (iii) What is the value of `test("abcdecab",2)`?
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Question 4b

Complete the following function `test` that takes a string `text` as input and does the following.

- if the first element of `text` is equal to the second element of `text`, returns a new string which is equal `text` but with the first two elements removed.
- otherwise, return `text`.

We assume that `text` is of length at least two.

For examples:

- `test("aab")` should return `"b"`
- `test("abb")` should return `"abb"`

```
def test(text):
```

Question 5a

The following program will not terminate. Explain why?

```
i=0
while i<100:
    print(i)
```

Question 5b

