Name ______________________________ Apr. 6, 2022

CptS 111 — Exam #2

Closed Book/Two Sheets of Notes Allowed
No electronic devices of any kind!

Directions:

1. **For multiple choice questions, circle your answer. Only one answer is correct.**
2. **Each non-coding question is worth 2 points; points for coding questions vary.**
3. **Read each question carefully and check your work if you finish early!**
4. Breathe in deeply, exhale slowly, and relax.
5. No hats or sunglasses may be worn during the exam.
6. Do not look at anyone else's exam or let anyone else look at yours!
7. Be neat! If we can't read what you've written, we can't give you credit!
8. If an answer is a `float`, make it clear by using a decimal point.
9. If an answer is an integer, make it clear by *not* using a decimal point.
10. If an answer should be in quotes, then use quotes.
11. **When writing code, indent clearly when you should indent.**
12. When writing code, do your best to indicate what you *can* do even if you can't do everything.
13. **When coding, be sure to use the prompts shown in the examples.**
14. **Do not use docstrings or comments in your code!**

1. Suppose we define a void function called `cheer()` with no parameters. What do we need to do to use this function?

   (a) Use a function call with an lvalue.

   (b) Use a function call with a variable as the argument.

   (c) Use a function call with an lvalue and no argument.

   (d) None of the above

2. What is the output of the following code?

```
dogs = [’poodle’, ’hound’, ’mutt’]
i = 1
for dog in dogs:
    print(f’{i}. {dog}’, end=’  ’)   (Note: 2 spaces inside ’’)
    i += 1
```

   (a) `poodle, hound, mutt`

   (b) `1. poodle, 2. hound, 3. mutt`

   (c) `1. poodle  2. hound  3. mutt`

   (d) None of the above

3. Names defined within functions have local scope.

   (a) True

   (b) False

4. Given the following, what is the correct index for 2?

```
list1 = [[’a’, (1, 0)], 3.1, (42, [5, (2, 7)])]
```

   (a) `list1[7]`

   (b) `list1[6]`

   (c) `list1[2][1][1][0]`

   (d) `list1[3][2][2][1]`

5. What kind of error will occur for the following code?

```
def print_name(name)
    print(name)
    return
print_name(’Joseph Gordon-Levitt’)
```

   (a) A function error

   (b) A logic error

   (c) A syntax error

   (d) None of the above

6. After the following code has been run, which statement below **must** be true?

```
with open(’cheer.txt’, ’a’) as file_out:
    print(’Go, Cougs!’, file=file_out)
```

(a) `Go, Cougs!` will have been written to an existing file.

(b) `Go, Cougs!` will have been written to a new file.

(c) `file_out` will be closed.

(d) All of the above

7. What is `text` after the following code has been run?

```
file_in = open(’book.txt’, ’r’)
text = file_in.read()
```

(a) A single string containing the entire contents of `book.txt`

(b) A list with string elements, each element a line from `book.txt`

(c) A string with a single line from `book.txt`

(d) None of the above

8. What is `text` after the following code has been run?

```
file_in = open(’book.txt’)
text = file_in.readlines()
```

(a) A single string containing the entire contents of `book.txt`

(b) A list with string elements, each element a line from `book.txt`

(c) A string with a single line from `book.txt`

(d) None of the above

9. One reason we used user-defined functions is to make our code run faster.

(a) True

(b) False

10. What is the output of the following code?

```
nums = [[1, 2, 3, 4], [5, 6, 7, 8]]
for row in nums:
    for col in row:
        print(col, end=’ ’)
    print()
```

(a) A nested list

(b) A single line of numbers

(c) A table (array) with four rows and two columns

(d) A table (array) with two rows and four columns

11. Which built-in function displays the information in a docstring?

    (a) `help()`

    (b) `dir()`

    (c) `tell()`

    (d) `zip()`

12. After the following code has been run, what is the value of `list1[1]`?

    ```
    def abs_val(nums):
        for i in range(len(nums)):
            if nums[i] < 0:
                nums[i] = -nums[i]
        return
    list1 = [-99, -1, 0, 100]
    list2 = list1
    abs_val(list2)
    ```

    (a) `1`

    (b) `-1`

    (c) Neither of the above

13. The `pass` command is a type of function stub.

    (a) True

    (b) False

14. If you need to change the value in a list, which of the following loops must you use?

    (a) An iterating `for`-loop

    (b) A counting `for`-loop

    (c) Either an iterating or counting `for`-loop

    (d) Either an iterating `for`-loop or a `while`-loop

15. What is the value of `s` after the following code has been executed? **Read this code very carefully!**

    ```
    s = ''
    slist = ['do', 're', 'mi']
    for item in slist:
        s = item + s
    ```

    (a) `'imerod'`

    (b) `'miredo'`

    (c) `['do', 're', 'mi']`

    (d) `'doremi'`

16. Assume `x` is a list. Which of the following is the appropriate header for accessing all the values of `x` in a counting `for`-loop?

    (a) `for i in range(len(x)):`

    (b) `for item in (len(x) - 1):`

    (c) `for i in range(len(x) - 1):`

    (d) `for i in len(x):`

17. In general, `for`-loops and `while`-loops are equally safe to use.

    (a) True

    (b) False

18. What is the output of the following code?

```
nums = [1, [2, 3, 4], 5, [6, 7], 8]
len(nums) - 1
```

    (a) `3`

    (b) `4`

    (c) `5`

    (d) `7`

19. Given the following code, which statement below is **false**?

```
def cheer(team=’Cougs’):
    print(f’Go, {team}!’)
    return
cheer(’Mariners’)
```

    (a) `team` is a keyword argument, and `’Cougs’` is a default parameter.

    (b) `cheer(team=’Seahawks’)` is a correct function call.

    (c) `cheer()` is a correct function call.

    (d) The output will be `Go, Cougs!`

20. What is the output of the following code?

```
desserts = [’cake’, ’pie’]
for i, dessert in enumerate(desserts):
    print(f’{i+1}. {dessert}’, end=’ ’)
```

    (a) `cake, pie`

    (b) `0. cake 1. pie`

    (c) `2. cake 3. pie`

    (d) None of the above

21. What is the output of the following code?

```
goodies = [’cake’, ’pie’, ’cheesecake’]
for i in range(len(goodies)):
    print(goodies[i], ’|’, end=’ ’)  (Note: 1 space between ’’)
```

(a) `cake | pie | cheesecake`

(b) `cake| pie| cheesecake|`

(c) `cake | pie | cheesecake |`

(d) None of the above

22. What sequence is generated by `range(1, 2, 1)`?

(a) `1`

(b) `1 2`

(c) `0 1 2`

(d) None of the above.

23. Given the dictionary `flowers`, which of the following headers should you use if you want to use both the keys and the values in the loop body?

(a) `for key, value in flowers:`

(b) `for key, value in range(len(flowers)):`

(c) `for key, value in flowers.items()`

(d) None of the above

24. When will the following loop stop executing?

```
letter = ’-’
while letter != ’’:
    letter = input(’Enter a letter: ’)
    <rest_of_loop_body>
```

(a) When a user presses the return key

(b) When a user enters a number

(c) Never

(d) None of the above

25. The following code is an example of nested functions.

```
num = float(input(’Enter a number: ’))
```

(a) True

(b) False

26. (3 pts) Add the necessary arguments to the `range()` function to produce the following sequence of integers: `2 4 6 8 10`

____

27. (3 pts) Write a single line of code to open a new file `data.txt` to write to, and assign the opened file to the lvalue `file_out`.

____

28. (3 pts) Write the header for a **counting** `for`-loop using the list `nums`.

____

29. (3 pts) Write the header for an **iterating** `for`-loop that iterates through the tuple `cars`. **Use `car` as the loop variable.**

____

30. (3 pts) Suppose a non-void function `get_info()` with no parameters returns a user's height `ht` and weight `wt` to the calling program. Write the proper function call for this function.

____

31. (7 pts) Write code to open a file called `faves.txt` for reading, and assign it to the lvalue `f_in`. Use an iterating `for`-loop to read each line of `f_in` and to print an itemized list of each line to stdout, i.e., the screen. Assume each line in `faves.txt` contains a single item. Finally, close `f_in`. The output of your code should have the same format as the following example:

```
1. chocolate croissants
2. cookies
3. scones
4. coffee ice cream
```

____

____

____

____

____

____

____

32. (7 pts) Define a non-void function `get_name()` with no parameters which prompts a user for their first name (`first`) and then prompts them for their last name (`last`) and returns these to the calling program. Use the prompts as shown below where boldface indicates user input.

```
Enter your first name: SpongeBob
Enter your last name: SquarePants
```

33. (7 pts) Define a non-void function `sort_nums()` with one parameter, a list of numbers `nums`, which uses an **iterating `for`-loop** to loop through the list, sorting them into two new lists `zero_up` and `negatives`, containing values greater than or equal to zero and negative values, respectively. `zero_up` and `negatives` are returned to the calling function.

34. (7 pts) You’re given the following dictionary:

```
cars = {’Tesla’: ’Model Y’, ’Hyundai’: ’Kona’, ’Toyota’: ’RAV4’}
```

Use a `for`-loop with the correct header and body to produce the following output:

```
What do you think of the Model Y?
What do you think of the Kona?
What do you think of the RAV4?
```

35. (7 pts) You’re given the following list of lists:

```
cookies = [[’sugar’, 12], [’oatmeal’, 15], [’shortbread’, 18]]
```

where the first elements in the inner lists are types of cookies and the second elements are the number of each type of cookie. Define a void function called `add_cookie()` with one parameter, the list `cookies`, which uses a **counting `for`-loop** and any other necessary statements to increase the number of cookies by 1. Assume that the list `cookies` has already been defined before your function is called.