# Exam 1 Review Sheet

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| Big Ideas |

1. What is the single most important skill for a computer scientist to have?
2. What is the importance of incremental coding?
3. What are the benefits of pair programming?
4. How do functions help in organizing code?
5. What is the purpose of the main function?
6. What is the importance of keeping your code organized?
7. How does turtle help us learn about coding in Python?
8. What are some of the benefits to pair-programming?
9. What is the most important skill for a computer scientist?
10. What kind of language is Python? (low/high)
11. Why is it important to use comments in your program?
12. Why would you use iteration?
13. True or False: An algorithm is a set of specific steps for solving a category of problems.
14. Which of these is ***not*** a main idea of CSC 226:
    1. Programming
    2. Problem-Solving
    3. Documentation
    4. Debugging
15. Why is the main function important in coding?
16. What kind of programming language is Python?
17. Imperative programming
18. Meta- programming
19. Object- oriented programming
20. Esoteric programming
21. What process have we used that helps coding take less time, have less bugs, and cost less overall? \_\_\_\_\_\_\_\_\_\_\_\_
22. How is python different from other programming languages?
    1. It is the simplest programming language.
    2. It is more structured than other languages.
    3. Programming languages does not differ from one another.
    4. Python is same as Java in every single respect.

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| Q0 |

1. When and where is the computer science lab?
2. What version of python are we using for this class?
3. How much is the final project worth?
   1. 10%
   2. 15%
   3. 20%
   4. 75%
4. What is our professor’s name?
5. Sam Hogan
6. Scott Heggen
7. Seth Hodgins
8. Sebastian Hastings
9. What are the hours of the evening lab?
10. Which of the following is **not** a level of Bloom’s Taxonomy of Learning?
    1. Knowledge
    2. Application
    3. Synthesis
    4. Examination
11. What is the date of our ***second*** exam?
12. What days and times is the TA lab open?
    1. Sunday - Thursday: 7:00 - 9:00 PM
    2. Sunday - Thursday: 7:00 - 9:00 AM
    3. Monday - Friday: 7:00 - 9:00 PM
    4. Monday - Friday: 7:00 - 9:00 AM

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| Q1 |

1. What does the following produce:

float(3.99990)

1. 3.99990
2. 0
3. 4
4. 3.9999
5. What does 20 // 3 return?
6. 6
7. 4
8. Error
9. None
10. What does the following produce:

int(3.9999)

1. 4
2. 3.5
3. 3
4. ERROR
5. Name the three types of errors that we encounter in Python: \_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_.
6. What are the three errors that often occur while programming?
7. Default, Return, Iteration
8. Syntax, Semantic, Real-time
9. Syntax, Semantic, Runtime
10. Iteration, Semantic, Syntaxal
11. What should the following code print?

# for i in range(4):

# print(i+1)

1. 0,1,2,3
2. 0,1,2,3,4
3. 1,2,3,4
4. None of the above
5. How is “program” defined in the context of computer science?

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| Q2 |

1. natasha=turtle.Turtle()

natasha.color(“HotPink”)

natasha.forward(20)

1. What is the class?
2. What is the method?

1. What is the object?

1. What are the attributes?
2. Calculate the following: (2\*\*3) \* 2
3. 16
4. 12
5. 36
6. Semantic Error
7. What is the difference between A=2 and A == 2.
8. If you import a turtle, then code turtle.forward(-90). Which direction is the Turtle facing?
   1. East
   2. West
   3. South
   4. North
9. Write a program that draws a hexagon, while utilizing the **for** loop.
10. A basic building block of many programs is to be able to repeat some code, over and over again. The type of structure which repeats its body is called a/an \_\_\_\_\_\_\_\_\_\_\_\_.
11. Given the following code, fill in the following blanks:

import turtle

wn = turtle.Screen()

alex = turtle.Turtle()

tess = turtle.Turtle()

alex.left(50)

tess.forward(80)

In chapter 3, our text began to introduce ideas from object-oriented programming (OOP). An object is an instance of a class, frequently used to model a thing or a concept from the real world, such as a turtle.

1. Give an example of an instance of the Turtle object from the above code: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
2. Give an example of a method of a Turtle object from the above code: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. Given the following code, fill in the following comment blanks with brief answers:

import turtle # This line's purpose is\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

wn = turtle.Screen()

wn.title("Alex")

alex = turtle.Turtle() # This line's purpose is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

# The next three lines will draw a/an \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

for i in [0,1,2,3]:

alex.forward(50)

alex.left(90)

1. Circle the letter of the best answer of what the output will be when the following code is run:

for i in range(4):

print(i)

**a.** **b.** **c.** **d.** **e.** SyntaxError **f.** none of these 0 1 0123 1234 invalid syntax(prog.py, line #)   
1 2  
2 3

3 4

1. What would happen if you ran the following code?

import turtle

wn = turtle.Screen()

tess = turtle.Turtle()

for i in range(6):

tess.forward(100)

tess.right(60)

1. It draws a hexagon
2. TypeError: forward() missing 1 required positional argument: 'distance'
3. NameError: name 'tess' is not defined
4. It draws a pentagon.
5. If Alex is an instance of the class Turtle, what is color in Alex.color?
   1. Attribute
   2. Object
   3. Human
   4. Instance
6. What line of code could be added to make the window wait for a click to exit the program?

import turtle

wn = turtle.screen()

tess = turtle.turtle()

for i in range(4):

tess.forward(100)

tess.left(90)

1. What **direction** does the turtle face when created?
2. North
3. South
4. East
5. West

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| Q3 |

1. True or False: A variable is declared inside of a function can it be called in another function
2. What is the purpose of parameters inside of docstrings?
3. Give a function that would draw a circle.
4. In the following code, what is the lifetime of a?

def final\_amt(p, r, n, t):  
 a = p \* (1 + r/n) \*\* (n\*t)  
 return a

1. Only exists while being executed
2. Only exists during the lifetime of the program
3. Can be used in all python files
4. Only exists while python is open
5. When should you utilize functions?
6. Which of the following is a void function?
   1. def func\_a():

x = 2+2

return x

func\_a()

1. def func\_b():

x = “potato”

If x != “potato”:

print(“cat”)

func\_b()

1. Which of these is the proper naming convention for a function (based on the book)?
   1. thisFunction
   2. THISFUNCTION
   3. ThisFunction
   4. This\_Function
2. How many parameters can a function have?

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| Q4 |

1. (Boolean Loop) continue loop while b is not equal to \_\_\_\_\_\_.
2. True or False: A return statement allows us to terminate the execution of a function before (or when) it reaches the end.
3. How many times is the body of the loop executed:

While (0<1):

print(“We are doing great!!)

1. 2 times
2. 1 times
3. Infinite times
4. Not a single time
5. for i in range(20):

print(i)

What does above code print?

1. All numbers from 1 through 20
2. All numbers from 0 through 20
3. All numbers from 0 through 19
4. All numbers from 1 through 19
5. Fill in the True or False table:

|  |  |  |
| --- | --- | --- |
| **a** | **b** | **a and b** |
| False | False | \_\_\_\_ |
| False | True | \_\_\_\_ |
| True | False | \_\_\_\_ |
| True | True | \_\_\_\_ |

1. What is a boolean expression?
2. List the six common comparison operators:

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| Q5 |

1. What is the name of extra code in a program that is there to make debugging or testing easier?
2. True or False: a fruitful function returns a value.
3. What does the following fruitful function return for logic(11,12)?

def logic(x,y)

If x==y:

return 1

Else:

return 0

1. Is the following function fruitful?

def pry(x):

if x < 11:

print(“we are very dumb”)

else:

print(“We are dumb”)

1. Write a fruitful function that takes the name of the user as an argument, and returns the number of characters in it.
2. if x == 2 :

print(“hoihjoihoihoihoihohoi”)

True or False: The above statement a conditional statement.

1. What are the two possible values of a Bool type?

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| Q6 |

1. Write the output of the following statements:

n=5

while (n-1)>0:

print(n+1)

n=n-1

1. What statement makes the loop skip the current iteration and move on to the next one?
2. break
3. pass
4. continue
5. skip
6. What is the value of i after the iteration?

sum = 0

for i in range(5):

I sum += i

1. 19
2. 11
3. 10
4. 9
5. What is a local variable?
6. What condition could you add above the following code to make it run infinitely?

while w == 1:

x = random.randrange(3, 12, 1)

t.speed(10)

t.penup()

t.goto(random.randint(-300, 300), random.randint(-300, 300))

t.pendown()

t.begin\_fill()

shape\_angle(x)

draw\_shape(t, x, y)

t.end\_fill()

1. What is the break statement used for in code?
   1. To immediately exit a loop
   2. To represent an invisible character
   3. To call another function
   4. To take a lunch break
2. Define “iteration”
3. What is the difference between a “for” loop and a “while” loop?

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| T0 |

1. Describe what the following appear to do in Python:
2. input()
3. str()
4. int()
5. print()
6. Differentiate between an integer, a float, and a string.
7. Choose the line with correct syntax:
   1. "Hello " + entered\_name + "! /n"
   2. "Hello [entered\_name] ! \n”
   3. "Hello " + entered\_name + "! \n"
   4. "Hello + entered\_name + ! \n
8. What is PyCharm and what does it allow us to do?
9. How do you use the “help” feature in Python?
10. What is the output of this statement: 5 \*\* 2

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| T1 |

1. What is the conditional that handles user inputs that are not expected or directly handled?
   1. if
   2. elif
   3. else
   4. for
2. Design two different algorithms which could be used to draw a large square and fill it using non-overlapping, just touching boustrophedon patterns. Describe your algorithms in plain English (not code).
3. True or False: An if statement results in a condition …
4. What is the difference between if and elif?
5. Which is the correct syntax of the if statement?
6. IF i == 3
7. if i == 3
8. if i == 3:
9. if (i = 3):
10. Which output does the following code give?

if K>5

print(“Kermit wants a high 5!”)

else:

print(“Kermit called that a low blow.”)

1. Kermit wants a high 5!
2. Kermit called that a low blow.
3. None
4. Syntax error
5. What happens if an if/else statement gets a string value instead of a integer value when the code is expecting an integer value?

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| T2 |

1. What is the difference between an object and a class?
2. Discern the difference between methods andattributes.
3. What is alex in the following code?

alex = turtle.Turtle()

tess = turtle.Turtle()

1. A turtle object
2. An instance of the turtle class
3. The turtle class
4. More than one is correct
5. What does “.color()” represent in the code “turtle.color(“red”)
   1. A method of the turtle class
   2. An instance of the turtle class
   3. An attribute of the turtle class
   4. The name of a turtle
6. Draw the default position of the turtle and the path of the turtle as it would appear in the console from the following code:

turtle.penup()

turtle.forward(-50)

turtle.right(90)

turtle.forward(50)

turtle.pendown()

for i in range(3)

turtle.left(90)

turtle.forward(20)

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| T3 |

1. Write pseudocode for a boustrophedon sequence for a rectangle with a width of 500 and a height of 700, with pen size of 20.
2. Where does the turtle start on the screen?
3. (0,0)
4. (100, 200)
5. (-30, 400)
6. None of the above
7. The default starting coordinates for a turtle object are: (\_\_\_\_\_,\_\_\_\_\_)
8. Why do we include docstrings in functions?
9. True or False: When defining a function, nothing can go in the parenthesis.
10. What is the purpose of a docstring in a function?
    1. To create the parameters of the function
    2. To execute the function
    3. To explain the meaning and usage of a function
    4. All of the above

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| T4 |

1. True or False: The modulus operator never leaves a remainder.
2. Define unit testing:
3. Testing all of the code in the debugger.
4. Testing each unit or block of code.
5. Checking the code for spelling errors instead of syntax errors.
6. All of the above.
7. True or False: Unit Testing is the testing of each logical unit or logical block of code.
8. What is the difference between debugging and unit testing?
9. What does this code do?  
    testit(i\_steal\_pennies(0.88)==[3, 1, 0, 3])
10. Tests a specific line in the code
11. Tests the entire code focusing on this specific line
12. Tests a specific function with set parameters
13. Error
14. What is scaffolding?
    1. A process of systematically writing code.
    2. A term completely unrelated to python.
    3. Refers to the extra code which is there to make testing or debugging easier.
    4. A unit testing method

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| T5 |

1. The three main sections of the debugger are: \_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_.
2. What does the ‘Step Into My Code’ function of the debugger do?
3. What is the process of identifying and eliminating unexpected behavior produced by your code?
4. What is **NOT** true about breakpoints?
   1. Debug mode will make it so that the IDE will stop at your breakpoints
   2. Breakpoints are lines in your program that you have indicated where the IDE should stop running the code so that you can see a "snapshot" of what the variable values are on that line
   3. Clicking on the button again after reaching a breakpoint will not resume running your program until it ends or another breakpoint is reached.
   4. All of the above are true
5. What is ”debugging”?
6. True or False: It is required that you use the debugging tool in PyCharm to debug your code.
7. What does the “Step Through” button do in the debugging console?

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| T6: |

1. Which bit of code changes the turtle’s color randomly?
2. True or false: for loop allows the program to run infinitely until the requirement is met.
3. How did you make your code run forever?
4. A function that returns a value is a/an \_\_\_\_\_\_\_\_\_\_\_.
5. What makes a function fruitful?
   1. A for loop
   2. A while loop
   3. A break statement
   4. A return statement
6. What kind of conditional loop executes a piece of code until the boolean value becomes false?
   1. For
   2. While
   3. If
   4. Else

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| A0 |

1. What service is recommended for backing up your files?
   1. Moodle
   2. Trello
   3. Making two copies of all your files
   4. Google Drive
2. What are you supposed to do to files before they are turned in?
3. If there’s a conflict between the due date listed in Moodle and the due date listed on the course agenda from the previous section, which due date will you (and I) be held accountable to; the **Moodle due date** or the **Course Website due date**?
4. What are libraries in Python? Give some examples
5. What is useful about Anaconda, why are we using it? \_\_\_\_\_\_\_\_\_\_\_\_\_\_
6. Which course due date is the actual due date for assignments: Trello or Moodle?
7. Which IDE do we use for this class?
   1. Anaconda
   2. Python
   3. PyCharm
   4. Windows

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| A1 |

1. What is a syntax error?
   1. An error that shows when you run the program
   2. An error that is not a technical error but instead an unexpected result.
   3. An error that is the result of the program crashing.
   4. An error in programming grammar.
2. What kind of error is this?  
    variable == input(“Is Chaos Rabbit is an awesome team name!!!?!!”)

1. True or False :An if statement must always be followed by an else.
2. The order in which statements are executed during a program run is called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
3. What is the definition of a “bug”?
4. What is the definition of a “crash”?
5. Define what a variable is:
6. Which of these forms of errors is real?
   1. Syntax Errors
   2. Run-Time Errors
   3. Semantic Errors
   4. Logic Errors
   5. All of the above

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| A2 |

1. Which of the following is NOT a correct for loop?
   1. For x in range(2):
   2. For y in “hey”:
   3. For g in [“cat”, ”koala”, ”giraffe”, ”lion”, “dog”]:
   4. For i in range (0,4)
2. Write a program to draw something while using a for loop that uses two or more methods in the turtle class.
3. When coding with Python turtles, how is your sense of direction important?
4. Which of the following is not an attribute?
   1. wn.bgcolor("lightgreen")
   2. def draw\_bar(t, height):
   3. tess.color("blue", "red")
   4. tess.pensize(3)
5. What is the purpose of a “loop”
   1. To repeat a code
   2. To execute a code
   3. To define a function
   4. To return a value
6. What built-in function is used alongside the for keyword to loop a finite number of times?
   1. range()
   2. in()
   3. as()
   4. numbers()

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| A3 |

1. True or False: On average, pair programming increases debugging times.
2. What is the method used to fill a shape with a color?
3. fillcolor()
4. fillColor()
5. shape.fillcolor()
6. Fill\_color
7. Briefly explain the difference between pair programming and partner programming.
8. Pair programming is when \_\_\_\_\_\_\_\_\_\_ programmers work together in one work station.
9. Which of the following is **NOT** a purpose of a function?
10. Encapsulating mental chunks
11. Keeping code organized
12. Performing Loops
13. Where does a code with three fruitful functions start to execute?
    1. The line where the first fruitful function is defined.
    2. The line where the main function is defined.
    3. The line where the main() function is called.
    4. The line where import resource is first defined.

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| A4 |

1. Is the modulus an operand or a function?
2. How was the computer trying to convert the numbers in the article?
3. 64 bit to 16 bit
4. 16 bit to 64 bit
5. 32 bit to 128 bit
6. 1 bit to 2 bit
7. How do you convert strings to integers to find the sum of the digits in the input?
8. What does the test\_suite() do at the end of this code?

def test\_suite():  
 """ Run the suite of tests for code in this module."""  
 test(absolute\_value(17) == 17)  
 test(absolute\_value(-17) == 17)  
 test(absolute\_value(0) == 0)  
 test(absolute\_value(3.14) == 3.14)  
 test(absolute\_value(-3.14) == 3.14)  
  
test\_suite()

1. What would this return and what type of operator is being used:

10 % 5 =

1. What value does a yield in the code below?

a = (11%3)//2 + 4

print(a)

1. What value does b yield in the code below?

b = (a\*\*3-12) % 3

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| A5 |

1. What is pseudocode?
2. How do you win The Game of Nim?
   1. Change the number to a multiple of 3
   2. Eat the jalapeno popper (if you like poppers)
   3. Change the number to a factor of 5
   4. Change the number to a multiple of 5
3. **Pseudocode** is a(n) \_\_\_\_\_ of the logic of a program in regular English
4. theory
5. outline
6. example
7. structure
8. What is the definition of “top-down design”?
9. True or False: **Pseudocode** is an outline of the logic of a program in regular English.