Write your answer in the blank line next to each question.

___ 1. 0000011\textsubscript{(2)} is equivalent to 3.

___ 2. 38 is equivalent to 11100110 \textsubscript{(2)}.

___ 3. Which of the following statements is true?
   a) RAM requires power to maintain its values.
   b) The CPU can directly access data from both memory and a solid state drive.
   c) CPU stands for computer programming unit.
   d) all of the above

___ 4. The term syntax refers to
   a) the meaning of statements
   b) the rules for forming legal statements
   c) a step-by-step set of instructions
   d) a type of programming language

___ 5. The term semantics refers to
   a) the meaning of statements
   b) the rules for forming legal statements
   c) a step-by-step set of instructions
   d) a type of programming language

___ 6. Why don’t we program computers using a common human language such as English?
   a) To make it more challenging for programmers.
   b) So programmers can make more money.
   c) Human languages are complex and often ambiguous or imprecise.
   d) all of the above

___ 7. A computer’s CPU executes instructions that are written in
   a) Python
   b) source code
   c) a subset of the English language
   d) the CPU only executes 0s and 1s

___ 8. The Python print function
   a) causes your printer to print out a page of paper
   b) causes text to be printed on the screen
   c) saves data to a file on your disk
   d) none of the above

___ 9. The Python input function
   a) only allows someone using your program to enter a value from the keyboard
   b) only displays text on the screen
   c) both displays text on the screen and allows someone using your program to enter value from
      the keyboard
   d) none of the above

___ 10. What is the purpose of comments in a computer program?
    a) They help the compiler or interpreter understand the code.
    b) They help the CPU understand the code.
    c) They help a human reading the comment understand the code.
    d) none of the above
11. In the software development process, which is the task you should do first?
   a) Write code in a computer language.  
   b) Design the code for the program.  
   c) Analyze the problem.  
   d) Test/debug the program.

12. If you want to convert from gallons to liters, which of the following expressions is correct given that one liter is 1.05669 quarts and there are four quarts in a gallon?
   a) liters = gallons * 4.0 * 1.05669  
   b) liters = gallons * 4.0 / 1.05669  
   c) gallons = liters * 1.05669 / 4.0  
   d) liters = gallons / 4.0 * 1.05669

13. Which of the following is a legal identifier?
   a) 3_points  
   b) float  
   c) three points  
   d) three_points

14. Which of the following is not a valid Python statement?
   a) print('x')  
   b) 3 + 4 = x  
   c) x = 3 + 4  
   d) x = eval(input('enter x: '))

15. If you want to use the accumulator pattern to add up a sequence of numbers, which of the following would be the correct initialization statement for the accumulator variable?
   a) total = -1  
   b) total = 0  
   c) total = 1  
   d) total = []

16. Which of the following statements is true about the Python int and float types?
   a) Int and float values are both stored exactly.  
   b) Int values are stored exactly and float values are usually approximations.  
   c) Neither int values nor float values are stored exactly.  
   d) Both int and float values have a limit on the largest value they can hold.

17. What is the result of float(int(3.5))?
   a) 3  
   b) 3.0  
   c) 4  
   d) 4.0

Use the following functions to answer questions 18-20

def bye_name(name):
    return "Bye " + name

def combine(a, b):
    sum = a + b
    if a == b:
        sum = sum * 2
    return sum

18. What is output by the following code: bye_name("Fred")

19. What is output by the following code:
    result = combine(3, 4)
    print(result)

20. What is output by the following code:
    data = "bob"
    result = combine(data, data)
    print(result)