CS 65
Introduction to Computer Science I

Practice Midterm Exam
Fall 2019

This is a closed book, closed notes exam. You may use one page of prepared notes. Please write all answers on this exam booklet. Be sure to put your name in the space indicated, and sign the statement below. You may use the last page as extra space; be sure to mark the continuation where appropriate. Partial credit is available on all short answer, code tracing, and code writing problems. Please show your work.

I certify that all of the answers on this exam are the result of my own efforts, and that I have not consulted with others, nor used the work of others in the completion of any part of this exam. I have not provided help to any others during this exam. I will not consult others in later sections regarding the content of this exam.

Signature_____

Name (please print) _____

Multiple Choice (2 points each)

_____ 1. This is a number that identifies an item in a list
   a. element
   b. underscore
   c. index
   d. bookmark
   e. slot
   f. none of the above is correct

_____ 2. What does == do in the Python programming language?
   a. assigns a value to a variable
   b. assigns a variable to a value
   c. compares if two items are identical, and returns a Boolean value
   d. compares if two items are identical, and returns an if statement
   e. none of the above is correct

_____ 3. This statement causes a function to end and sends a value back to the part of the program that called the function.
   a. `exit`
   b. `break`
   c. `continue`
   d. `Boolean`
   e. none of the above is correct

_____ 4. An informal language that has no syntax rules and is not meant to be executed is called _____
   a. logarithm
   b. algorithm
   c. Python
   d. pseudocode
   e. flowchart
   f. none of the above is correct

_____ 5. A compound Boolean expression created with the _____ operator is true if either of the subexpressions are true.
   a. or
   b. not
   c. and
   d. both
   e. none of the above is correct

_____ 6. Which of these assignment statements are invalid?
   a. `x + y = y + z`
   b. `count =+ 1`
   c. `total == total + 1`
   d. `42 = x`
   e. all of the above

Fill in the blank (2 points each)

7. A(n) _____ translates and executes instructions in a high-level language to machine language one instruction at a time.

8. A(n) _____ expression is one that has a value that is either true or false.

9. What does RAM stand for ?

_____

10. A sequence of characters that is used as data is known as a(n) _____

11. This term is used to describe a loop that appears inside another loop

_____

12. According to lecture, the benefits of using _____ include: simpler code, code reuse, better testing and debugging, and ease of facilitating teamwork in developing code.

Complete Answer. Completely answer the following questions – *complete sentences are not required.* (4 points each)

13. What is an algorithm?

14. In computer science, what is *scope*?

15. What is an argument? What is a parameter? How are they used in programming? Give an example of each.

16. Compare and contrast local and global variables.

Tracing Code Segments. Write what would be output to the console. (4 points)

17.
```
for i in range(1,4):
    for j in range (3):
        print("X", end = " ")
    print()
```

18.
```
i = 2
total = 0
while i < 9:
    if i%2 == 1:
        i += 1
    else:
        i += 3
    total = total + i
    print(i)

print("...")
print(total)
```

Code Writing Segments. Write the code that would accomplish the following
(4 points each)

19. Use a loop to print out the integers 1 thru 10 followed by the square of the number. The output of the code should look like this :

```
1 --- 1
2 --- 4
3 --- 9
4 --- 16
5 --- 25
6 --- 36
7 --- 49
8 --- 64
9 --- 81
10 --- 100
```

20. Write the code that will first prompt the user to enter their gpa. If the value is equal to 4.0, print “perfect”. If the value is less than 0.8 print “you should study harder”. Otherwise, print out, “enjoy college while it lasts!”

21. Use a nested loop to print out an ***addition*** table to the console as shown below:

```
0   1   2   3   4   5
1   2   3   4   5   6
2   3   4   5   6   7
3   4   5   6   7   8
4   5   6   7   8   9
```

(6 points)

22. Define a function called **`graduating_senior`** that accepts a parameter called `credits`. If `credits >= 124`, print "you can graduate". Otherwise print "you need to take more classes".

22a. Prompt the user for the number of credits they have. Use the response as an argument in a call to `graduating_senior`

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