

Part I. (38 points) Solve each of the following problems. For the multiple choice problems, select the correct answer by placing an “X” in the box beside it.

- (1^{pt}) 1. What is the data type of the value: `days = 365`?
 `str` `int` `float` `bool` 1 pt
- (1^{pt}) 2. What is the data type of the value: `greetings = 'hello'`?
 `str` `int` `float` `bool` 1 pt
- (1^{pt}) 3. What is the data type of the value: `awake = True`?
 `str` `int` `float` `bool` 1 pt
- (1^{pt}) 4. What is the data type of the value: `pi = 3.14159`?
 `str` `int` `float` `bool` 1 pt
- (1^{pt}) 5. Which of the following is NOT a Python reserved keyword?
 `for` `speed` `else` `if` 1 pt
- (1^{pt}) 6. Which of the following is a bad Python variable name?
 `SPAM23` `Spam` `._spam` `23spam` 1 pt
- (1^{pt}) 7. What will be the value of `x` when the following statement is executed:
`x = int(98.6)`
 99 6 98 100 1 pt
- (1^{pt}) 8. What will be the value of `x` after the following statement executes:
`x = 1 + 2 * 3 - 8 / 4`
 5 2 4 8 1 pt
- (1^{pt}) 9. What is the value of the following expression:
`42 % 10`
 4210 2 420 42 1 pt
- (1^{pt}) 10. What does the following statement do?
`x = x + 2`
 Retrieve the current value for `x`, add two to it, and put the sum back into `x`.
 This would fail as it is a syntax error.
 Create a function called `x`, and put the value 2 in the function.
 Produce the value `False`, because `x` can never equal `x + 2` 1 pt
- (1^{pt}) 11. In the following code,
`x = 42`
What is `x`?
 A Central Processing Unit
 A function
 A constant
 A variable 1 pt

11 pts

- (1^{pt}) **12.** What does the Python `raw_input()` function do?
- Pause the program and read data from the user.
 - Take a screen shot from an area of the screen.
 - Read the memory of the running program.
 - Connect to the network and retrieve a web page.
- (1^{pt}) **13.** Which of the following is a comment in Python?
- `/* This is a test */`
 - `// This is a test`
 - `# This is a test`
 - `* This is a test`
- (1^{pt}) **14.** Which of the following elements of a mathematical expression in Python is evaluated first?
- Multiplication `*`
 - Addition `+`
 - Parenthesis `()`
 - Subtraction `-`
- (1^{pt}) **15.** What is the purpose of the `def` keyword in Python?
- It is slang that means, “the following code is really cool!”
 - It indicates the start of a function.
 - It indicates that the following indented section of code is to be stored for later.
 - It is one of the boolean operators.
- (2^{pts}) **16.** Assume that the variable `num` contains a positive integer value. Write a code fragment using an `if` statement that displays `even` to the terminal output if the variable `num` is an even number, and `odd` if the variable `num` is an odd number.
- (2^{pts}) **17.** Assume that the variable `num` contains a positive integer value. Write a code fragment using an `if` statement that displays `multiple of 5 and 7` if the variable `num` is a multiple of 5 and a multiple of 7.

1 pt

1 pt

1 pt

1 pt

2 pts

2 pts

8 pts

(1^{pt}) 18. What is the output of the following `while` loop?

```
num = 0
while num < 3:
    print num
    num += 1
```

1 pt

(1^{pt}) 19. What is the output of the following `while` loop?

```
num = 5
while num < 10:
    print num
    num += 2
```

1 pt

(1^{pt}) 20. What is the output of the following `for` loop?

```
for item in range(5):
    print item
```

1 pt

(1^{pt}) 21. What is the output of the following `for` loop?

```
for item in range(1, 6):
    print item
```

1 pt

4 pts

- (2^{pts}) **22.** Write a Python function that calculates the area of a circle. Your function should be named `circlearea` and it should take in a single parameter `radius`. After you have performed the calculation, print the result.

2 pts

- (2^{pts}) **23.** Write a Python function `totalseconds` that takes three parameters: `hours`, `minutes` and `seconds`, and calculates the total number of seconds that corresponds to that amount of time. For example, if `totalseconds(7, 21, 37)`, your program should print: `26497`

2 pts

- (2^{pts}) **24.** Write a Python function that converts a Fahrenheit temperature to a Celsius temperature using the following equation:

2 pts

$$\text{Celsius} = \frac{5}{9} * (\text{Fahrenheit} - 32)$$

Your Python function should be named `temperature`, and it should take in a single parameter `fahrenheit`. Perform the conversion using the provided equation, and print your result.

6 pts

- (3^{pts}) **25.** Write a Python function that computes the amount of pay that an employee receives, based upon the number of hours that the employee has worked, and the rate of pay. The function should be named `grosspay`, and it should take in two parameters: `hours` and `rate`. The employee should be paid the standard rate for working 40 hours or less. However, if the employee works more than 40 hours, then he is entitled to an overtime pay rate of 1.5 times the standard pay rate. After the pay has been calculated, print the result.

3 pts

- (3^{pts}) **26.** If you are given three sticks, you may or may not be able to arrange them in a triangle. For example, if one of the sticks is 12 inches long and the other two are one inch long, it is clear that you will not be able to get the short sticks to meet in the middle. For any three lengths, there is a simple test to see if it is possible to form a triangle:

- If any of the three lengths is greater than the sum of the other two, then you cannot form a triangle. Otherwise, you can.

Write a function called `triangle` that takes three integers as arguments, and that returns either `True` or `False` depending on whether you can or cannot form a triangle from sticks with the given lengths. For example:

- `triangle(12,1,1)` returns: `False`
- `triangle(3,4,5)` returns: `True`

3 pts

6 pts

- (3^{pts}) **27.** Write a Python function called `computegrade` that takes in a single parameter called `score`. The `score` should be a value between 0.0 and 1.0, and if the `score` is out of range, print an error message. Otherwise, if the `score` is between 0.0 and 1.0, print a grade using the following table:

Score	Grade
≥ 0.9	A
≥ 0.8	B
≥ 0.7	C
≥ 0.6	D
< 0.6	F

3 pts

3 pts