

**Part I.** (43 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<sup>pt</sup>) 1. What is the data type of the value: `days = 365`?

str       int       float       bool

1 pt

- (1<sup>pt</sup>) 2. What is the data type of the value: `greetings = 'hello'`?

str       int       float       bool

1 pt

- (1<sup>pt</sup>) 3. What is the data type of the value: `awake = True`?

str       int       float       bool

1 pt

- (1<sup>pt</sup>) 4. What is the data type of the value: `pi = 3.14159`?

str       int       float       bool

1 pt

- (1<sup>pt</sup>) 5. Which of the following is NOT a Python reserved keyword?

for       speed       else       if

1 pt

- (1<sup>pt</sup>) 6. Which of the following is a bad Python variable name?

SPAM23       Spam       \_spam       23spam

1 pt

- (1<sup>pt</sup>) 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<sup>pt</sup>) 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<sup>pt</sup>) 9. What is the value of the following expression:

`42 % 10`

4210       2       420       42

1 pt

- (1<sup>pt</sup>) 10. What does the following statement do?

`x = x + 2`

1 pt

- 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`

10 pts

(1<sup>pt</sup>) **11.** In the following code,

```
x = 42
```

What is x?

- A Central Processing Unit
- A function
- A constant
- A variable

(1<sup>pt</sup>) **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<sup>pt</sup>) **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<sup>pt</sup>) **14.** Which of the following elements of a mathematical expression in Python is evaluated first?

- Multiplication \*
- Addition +
- Parenthesis ()
- Subtraction -

(1<sup>pt</sup>) **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<sup>pts</sup>) **16.** What is the value of `num` after these commands execute?

```
num = 10
num = num + num
num = num - 5
```

Answer:

(2<sup>pts</sup>) **17.** What is the output of the following code?

```
x = min(max(13, 7), 9)
print x
```

Answer:

1 pt

1 pt

1 pt

1 pt

1 pt

2 pts

2 pts

9 pts

- (2pts) **18.** What is the output of the following code:

```
pancakes = 10
if pancakes > 3:
    print 'Yum!'
else:
    print 'Still hungry!'
```

Answer:

- (2pts) **19.** What is the output of the following code:

```
age = 16
if age >= 18:
    print 'You can drive'
elif age < 0:
    print 'You are a time traveller'
else:
    print 'Too young to drive'
```

Answer:

- (3pts) **20.** 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.

- (3pts) **21.** 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

3 pts

3 pts

10 pts

- (3pts) **22.** Modify the following program, so that it counts **up** starting from 1 and going up to 5, printing the digits along the way. After it reaches 5, it prints **Blastoff!** Call your new method **countup()**.

```
def countdown():
    timeleft = 5
    while timeleft >= 1:
        print 'Time left:', timeleft
        timeleft = timeleft - 1
    print 'Blastoff!'
```

3 pts

- (3pts) **23.** Write a Python function that converts a Fahrenheit temperature to a Celsius temperature using the following equation:

3 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

- (4pts) **24.** 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.

4 pts

4 pts

- (4pts) **25.** 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
$\geq 0.9$	A
$\geq 0.8$	B
$\geq 0.7$	C
$\geq 0.6$	D
$< 0.6$	F

4 pts

4 pts