

Carnegie Mellon University in Qatar

Principles of Computing

15-110 - Fall 2018

Homework Assignment 1

Out: September 06, 2018

Due: 10:00 AM, September 13, 2018

2pts 1. Which of the following is not a legal identifier?

- (a) `_for`
- (b) `Cas$h`
- (c) `My_name!`
- (d) `?balance`
- (e) `2try`
- (f) `Try_2`

4pts 2. Which of the following is true in Python? (select all that apply)

- (a) The output of `12/3 * 4` is an integer value
- (b) The statement `eval("12/3 * 4")` is correct and outputs a float value
- (c) The statement `eval(str(int(12/3*4))` is correct and outputs an integer value
- (d) The statement `eval(int(str(12/3*4))` is correct and outputs an integer value
- (e) The statement `eval(12//3 * 4)` is correct and outputs an integer value
- (f) The statement `eval("12//3*4")` is correct and outputs a float value
- (g) The following code runs with no errors and prints *Programming is really fun! I enjoy learning it*, all on one line

```
print("Programming is", end=" really fun!")
print("$\backslash$nI enjoy learning it")
```

4pts 3. The Python `print` function supports other keyword parameters besides `end`. One of these other parameters is `sep`. What do you think the `sep` parameter does? *Hint: `sep` is short for separator. Test your idea either by trying it interactively or by consulting the Python documentation.*

6pts 4. The following program is supposed to convert a temperature from Fahrenheit to Celsius, however, it contains several errors. Identify and discuss (very briefly) these errors. In addition, modify the code so that it will run correctly without any error.

```
def main:
    float fahrenheit = 62.5

    int celsius = f2c(fahrenheit)
    print(fahrenheit + " F = " + celsius + " C")

def f2c(fahr):
    return (fahr - 32) * 9 /5

main
```

4pts

5. The following code attempts to print variable `x` defined in function `callMe(i, j=100)`. Will it run correctly? If not, explain why and fix it without changing any syntax in the function `callMe(I, j=100)`.

```
def callMe(i, j = 100):  
    global x  
    x = 4  
    print(i, j)  
  
print(x)  
callMe(50)
```

3pts

6. What will be the output of the following code and why?

```
def power(a, b, result):  
    result = a ** b  
  
result = 0  
print("Result before: " + str(result))  
power(2, 3, result)  
print("Result after: " + str(result))
```

12pts

7. Write a Python program that prompts users to enter the distance of a road in kilometers and prints back the distance in miles.

15pts

8. Write a program to print the lyrics of the song "Old MacDonald." Your program should not use more than five print statements and yet print the lyrics for five different animals. The example verse below shows the lyrics for a cow.

```
Old MacDonald had a farm, Ee-igh, Ee-igh, Oh!  
And on that farm he had a cow, Ee-igh, Ee-igh, Oh!  
With a moo, moo here and a moo, moo there.  
Here a moo, there a moo, everywhere a moo, moo.  
Old MacDonald had a farm, Ee-igh, Ee-igh, Oh!
```