Python class 8 homework

1. Use Python 3 build in functions to solve below questions:

   a) Print out the maximum number in list [1, 3, 2, 8, 5, 10, 6]

   b) Find number whose sum of digits is largest using key function. Try 2 ways: 1) use max(arg1, arg2, *args, key); 2) use max(iterable, key)

2. Look up Python 3 document and study build in functions repr(); explain what does below programs do:

```
for x in range(1, 11):
    print(repr(x).rjust(2), repr(x*x).rjust(3), end=' ')
    print(repr(x*x*x).rjust(4))
```


3. Look up Python 3 document and study build in functions format (); explain the outputs of below program:

```
# integer
print(format(1234, "*<+8,d"))

# float number
print(format(123.4567, "#^-9.3f"))
```


4. Answer following questions:

   - Are "if", "else", "while" build-in functions? Provide your reasons of your answer.

   - What is "tuple" in Python? And what is the difference between "tuple" and "list"?

5. Write a Python program to find the median of three numbers from the user input. Hint, use build in function input(), int(), print()

6. In the class we created a file and write content into the file, by using below program:

```
# create test.text file of the current directory
f = open("test.txt", "w+")
f.write("This is a test file for python class 8.")
f.close()
```

Try above program in your local Jupyter notebook if you haven't done it. Then write program to copy the content from test.txt to a new file called "output.txt".

Hint: http://www.pythonforbeginners.com/files/reading-and-writing-files-in-python

7. Write a Python program to find the second smallest number in the list `numbers = [20, 12, 15, 57, 67, 79, 96, 52, 25, 47, 95, 14, 37, 101, 23, 44, 17, 9]`

8. Write a program to find the longest word in below string:

Hint: changes the string into words first.

```
content = "SpaceX set a brisk pace this week, with two successful
launches of the Falcon 9 rocket. The second launch by the company –
whose chief executive is its billionaire founder, Elon Musk – re-used a
previously flown first stage booster, increasing confidence that SpaceX
could deliver re-useable rockets and so drive down launch costs."
```