Session 1: Review of Basic Python

A. Type of object

```
[1]: type(3)
```

```
int
```

Q1: What are the types of the following objects? a) `3.1` b) `3.0` c) `'3'` d) `True` e) `print`

B. Operators

```
[2]: 2+5*5
```

```
27
```

Q2: What do the following operators do when used with numbers?
a) * b) / c) // d) ** e) == f) != g) >=
Q3: What do the following operators do when used with strings?
a) + b) == c) != d) > e) >=
Q4: Predict the output of the following expressions:
a) `3**2+5` b) `5+(6>3)*2` c)`4*(5+2-1)+(6==1)` d) `6//4` e) `'3'+'2'` f) `'3'+2`

C. A Simple Program

```
[7]: q=int(input('Input quantity sold:'))
     p=float(input('Input the profit of each unit:'))
     print('Total profit with quantity',p,'and price $',q,'is $',p*q,'.')
```

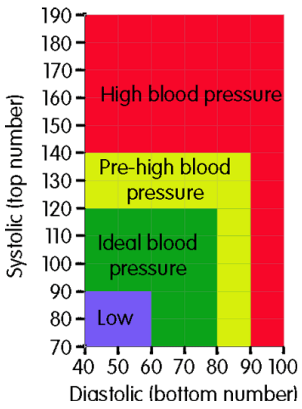
```
Input quantity sold:5
Input the profit of each unit:3.5
Total profit with quantity 3.5 and price $ 5 is $ 17.5 .
```

```
[8]: print(f'Total profit with quantity {p} and price ${q} is ${p*q}.')
```

```
Total profit with quantity 3.5 and price $5 is $17.5.
```

D. Conditional Execution

The following program asks for the user's systolic and diastolic blood pressure, and output one of `LOW`, `IDEAL`, `PRE-HIGH` or `HIGH` according to this chart:



```
[4]: high=float(input('Systolic blood pressure:'))
     low=float(input('Diastolic blood pressure:'))
     if low<=60 and high<=90:
         answer='LOW'
     elif low<=80 and high<=120:
         answer='IDEAL'
     elif low<=90 and high<=140:
         answer='PRE-HIGH'
     else:
         answer='HIGH'

     print('Your blood pressure is',answer)
```

```
Systolic blood pressure:100
Diastolic blood pressure:70
Your blood pressure is IDEAL
```

E. Defining and Calling your Own Functions

```
[5]: def calculateWage(hours,base=10,bonus=.5):
         ''' Calculates weekly wage '''
         if hours<=40:
             pay=hours*base
         else:
             pay=hours*base+(hours-40)*base*bonus
         return pay

     help(calculateWage)
     print('Pay for 42 hours with default base and bonus:',calculateWage(42))
     print('Pay for 42 hours with base 12/hour and default bonus:',calculateWage(42,12))
     print('Pay for 42 hours with base 12/hour and bonus 60%:', calculateWage(42,12,.6))
     print('Pay for 42 hours with default base and bonus 50%:',calculateWage(42,bonus=0.6))
```

```
Help on function calculateWage in module __main__:

calculateWage(hours, base=10, bonus=0.5)
    Calculates weekly wage

Pay for 42 hours with default base and bonus: 430.0
Pay for 42 hours with base 12/hour and default bonus: 516.0
Pay for 42 hours with base 12/hour and bonus 60%: 518.4
Pay for 42 hours with default base and bonus 50%: 432.0
```

Case 1. Basestock Policy in Inventory Management

Write a function named `orderQuantity` that takes two input arguments, `inventory` and `basestock`. If `inventory` is at least equal to `basestock`, then return 0. Otherwise, return the difference between `basestock` and `inventory`. Set the default value for `inventory` to be 0 and for `basestock` to be 100. Include an appropriate docstring to explain what the function does.

[7]:
```
# Code to test your function
help(orderQuantity)
print(orderQuantity())
print(orderQuantity(25))
print(orderQuantity(51,50))
print(orderQuantity(basestock=200))
print(orderQuantity(inventory=80))
```

```
Help on function orderQuantity in module __main__:

orderQuantity(inventory=0, basestock=100)
    Calculates order quantity given inventory level and basestock level

100
75
0
200
20
```

Case 2. Blood Sugar Checker

Write a program that asks the user how many hours they have fasted and their current blood sugar level. If they have fasted less than 2 hours, then output `You need to fast at least 2 hours to perform this test.` If they fasted at least 2 hours but less than 8 hours, then output `Your blood sugar level is high` if it is more than 140, and `Your blood sugar level is normal` otherwise. If they have fasted for at least 8 hours, then the threshold changes to 100 (instead of 140).

[8]:

```
How many hours have you fasted: 3
What is your blood sugar level: 50
Your blood suguar level is normal.
```