Python Programming – Basics

1. Operator evaluation

a. ((not (9==8)) and ((7+1)!=8)) or (6<4.5)

b. (10 < 5) and ((5/0) < 10)

c. (10 > 5) and ((5/0) < 10)

d. -7 * 20 + 8 / 16 * 2 + 54 (imp)

e. 'hi'>'hello' and 'bye'<'Bye'

f. 'hi'>'hello' or 'bye'<'Bye'

g. 7 > 8 or 5 < 6 and 'I am fine' > 'I am not fine'

h. 5 % 10 + 10 > 50 and 29 >= 29

i. 7 ** 2 // 4 + 5 > 8 or 5 != 6

j. 'hello' * 5 > 'hello' and 10 + 6 * 2 ** 2 != 9 // 4 -3 and 29 >= 29 / 9

2. Bitwise operators

a. 15 & 22 b. 15 | 22 c. -15 & 22 d. -15 | 22 e. ~15 f. ~22

g. 15 ^ 22 h. 8 << 3 h. 40 >> 3

3. Output

```
hi = "hello there"
name = "Rahul"
greet = hi + name
print(greet)
greet = hi+" "+name
print(greet)
silly = hi + (" " + name)*3
print(silly)
```

4. Write a function which accepts radius of circle, computes and returns area and perimeter

5. Solve the quadratic equation ax**2 + bx + c = 0, Hint: import cmath and use cmath.sqrt function to compute complex root when D<0. Same works for D>=0

6. Build a calculator program that provides the facility to do the following simple arithmetic computations on two numbers:

A. add

B. multiply

C. average.

Provide a text based menu which provides the above choices as numerical inputs. Once selected, the program accepts the two numbers one by one, and exits after printing out the result based on the chosen operation

7. Write a program which takes two numbers as input representing the two perpendicular sides of right angled triangle, and prints out the length of the hypotenuse

8. Consider the following piece of Python code:

```
a=10
b=4
c=3.4
d=a/10
 e=b*c
a=a*e
s="Placement Preparation Program 2019"
 t=a+s
```

At the end of each line of the above code, investigate the type of the variable defined in that line. For each line, what can be said about the typing rules of Python from these observations