Q1. Explain the basic data types available in Python with examples.

Python has several built-in data types:
1. int → integers
`x = 10`
2. float → decimal numbers
`y = 3.14`
3. str → strings
`name = "Python"`
4. bool → True/False
`flag = True`
5. complex → real + imaginary
`z = 2 + 3j`

Q2. Describe the difference between lists and tuples in Python. When would you use each?

List: Mutable, written in [ ]. Example: `fruits = ["apple","banana"]`
Tuple: Immutable, written in ( ). Example: `colors = ("red","green")`
■ Use lists when data may change, tuples when data must remain constant.

Q3. Write a Python function to calculate the factorial of a number using recursion.

```
def factorial(n):
  if n == 0 or n == 1:
    return 1
  else:
    return n * factorial(n-1)
print(factorial(5)) # Output: 120
```

Q4. How do you handle exceptions in Python? Explain with a code example handling a division by zero error.

We use try-except block.

```
try:
  a = 10
  b = 0
  result = a / b
  print(result)
except ZeroDivisionError:
  print("Error: Division by zero is not allowed.")
```

Q5. Describe the difference between for and while loops in Python. Give an example of each.

for loop: Used when number of iterations is known.

```
for i in range(5):
  print(i) # 0 1 2 3 4
```

while loop: Used when iterations are unknown, runs until condition is false.

```
x = 0
while x < 5:
  print(x)
  x += 1
```