🕐 Hour 4: **Basic Programs & Practice (Python)**

1️⃣ Basic Python Program Structure

```
# This is a comment
print("Hello, Python")
```

🔹 **Key Points**

- Python is **case-sensitive**
- Indentation is **mandatory**
- # is used for comments

2️⃣ Simple Input–Output Programs

🔹 Program 1: Print Name

```
name = input("Enter your name: ")
print("Hello", name)
```

🔹 Program 2: Add Two Numbers

```
a = int(input("Enter first number: "))
b = int(input("Enter second number: "))
print("Sum =", a + b)
```

🔹 Program 3: Area of Rectangle

```
length = float(input("Enter length: "))
breadth = float(input("Enter breadth: "))
area = length * breadth
print("Area =", area)
```

3️⃣ Programs Using Data Types

🔹 Program 4: Check Data Type

```
x = 10
y = 5.5
z = "Python"

print(type(x))
print(type(y))
print(type(z))
```

4 Programs Using Lists

◆ Program 5: List Operations

```
numbers = [10, 20, 30]
numbers.append(40)
numbers.remove(20)
print(numbers)
```

◆ Program 6: Find Length of List

```
marks = [85, 90, 78]
print("Total subjects:", len(marks))
```

5 Programs Using Tuples

◆ Program 7: Tuple Access

```
days = ("Mon", "Tue", "Wed")
print(days[1])
```

6 Programs Using Sets

◆ Program 8: Set Operations

```
A = {1, 2, 3}
B = {3, 4, 5}
print("Union:", A.union(B))
```

7 Programs Using Dictionaries

◆ Program 9: Student Details

```
student = {
    "name": "Rahul",
    "age": 18,
    "marks": 92
}
print(student["name"])
```

8️⃣ Small Logic-Based Programs

🔹 Program 10: Even or Odd

```
num = int(input("Enter a number: "))
if num % 2 == 0:
    print("Even")
else:
    print("Odd")
```

🔹 Program 11: Largest of Two Numbers

```
a = int(input("Enter a: "))
b = int(input("Enter b: "))

if a > b:
    print("a is greater")
else:
    print("b is greater")
```

9️⃣ Practice Questions (Very Important for Exams)

✍️ **Write programs to:**

1. **Find the square of a number**
2. **Convert Celsius to Fahrenheit**
3. **Display elements of a list**
4. **Count elements in a tuple**
5. **Add two sets**
6. **Create a dictionary and print all keys**

🔑 Exam Tips

✓ **Use proper indentation**

✓ **Use int() / float() for input**

✓ **Write meaningful variable names**

✓ **Always test output**