**Topic: Functions & Modules (Practice Questions)**

**Part 1: Creating and Using Functions**

1. **Write a function** named greet\_user() that prints “Welcome to Python Programming!”.  
   → Call the function 3 times.
2. **Write a function** add\_numbers(a, b) that returns the sum of two numbers.  
   → Call it with different values and print the result.
3. **Write a function** is\_even(num) that checks whether a number is even or not.  
   → If even, print “Even number”, otherwise “Odd number”.
4. **Write a function** calculate\_area(length, width=5) where the width has a default value.  
   → Call it once by passing both arguments, and once with only length.
5. **Write a function** display\_info(name, age, city) that accepts keyword arguments only.  
   → Call it using named parameters.

**Part 2: Variable Arguments (\*args, \*\*kwargs)**

1. **Write a function** sum\_all(\*numbers) that accepts any number of numeric arguments and returns their total.  
   → Example: sum\_all(10, 20, 30) should return 60.
2. **Write a function** show\_details(\*\*info) that prints all key-value pairs passed to it.  
   → Example: show\_details(name="Amit", course="Python", duration="3 months").
3. Combine both types of arguments:
   * Create a function student\_record(course, \*names, \*\*details)  
     that prints the course name, student list, and additional details.

**Part 3: Scope of Variables**

1. Write a program to show the difference between **local** and **global** variables.
   * Define a variable count globally.
   * Inside a function, modify and print it using the global keyword.
2. Create a nested function outer() → inner() and demonstrate **enclosing (nonlocal)** scope.

**Part 4: Function Documentation**

1. Write a function multiply(a, b) with a **docstring** explaining what it does, parameters, and return value.  
   → Print its documentation using print(multiply.\_\_doc\_\_).

**Part 5: Lambda Functions and map()**

1. Create a lambda function to find the **square** of a number.  
   → Example: square = lambda x: x\*\*2.
2. Use map() and a lambda to convert a list of temperatures in Celsius to Fahrenheit.  
   → Formula: F = (C \* 9/5) + 32.
3. Use map() with a lambda to double each number in a list [2, 4, 6, 8, 10].

**Part 6: Modules**

1. **Create your own module** named math\_utils.py that contains:

* A function add(a, b)
* A function factorial(n)  
  Then import this module in another file (e.g., main.py) and call both functions.