Python Functions Assignment

Part A – Basics (5 Questions)

1. Write a function `greet(name)` that takes a person's name and prints `"Hello, <name>!"`.
2. Create a function `add_numbers(a, b)` that returns the sum of two numbers.
3. Define a function `is_even(num)` that returns `True` if the number is even, otherwise `False`.
4. Write a function `factorial(n)` that returns the factorial of a given number using a loop.
5. Create a function `convert_to_celsius(fahrenheit)` that converts Fahrenheit to Celsius.

Part B – Parameters & Return (5 Questions)

1. Write a function `calculate_area(length, width=5)` that calculates the area of a rectangle (use default argument for width).
2. Define a function `power(base, exponent=2)` that returns base raised to the power of exponent (default square).
3. Write a function `count_vowels(word)` that returns the number of vowels in a string.
4. Create a function `reverse_string(s)` that returns the reversed version of the string.
5. Write a function `max_of_three(a, b, c)` that returns the largest of three numbers.

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*Part C – *args and **kwargs (5 Questions)

1. Write a function `sum_all(*numbers)` that returns the sum of all numbers passed.
2. Create a function `multiply_all(*numbers)` that multiplies all numbers passed.
3. Write a function `print_details(**info)` that accepts name, age, and city as keyword arguments and prints them.
4. Create a function `describe_pet(animal, **details)` that prints details about the pet.
5. Write a function `average(*numbers)` that returns the average of given numbers.

Part D – Advanced (5 Questions)

1. Create a function `palindrome_check(word)` that returns `True` if the word is a palindrome.
2. Write a function `unique_elements(lst)` that returns a list of unique elements without using `set()`.
3. Create a function `prime_numbers(limit)` that returns a list of prime numbers up to the given limit.
4. Write a function `word_count(sentence)` that returns a dictionary with words as keys and their frequency as values.