Question 1: String Manipulation

Question: Write a Python function that takes a string and returns a dictionary with the count of each vowel (a, e, i, o, u) in the string. Ignore case.

Sample Input:

A= "Hello World"

Sample Output:

{'a': 0, 'e': 1, 'i': 0, 'o': 2, 'u': 0}

Question 2: List and Loops

Question: Write a Python function that takes a list of integers and returns a new list containing only the prime numbers from the original list.

Sample Input:

A = [2, 3, 4, 5, 6, 7, 8, 9, 10]

Sample Output:

[2, 3, 5, 7]

Question 3: Tuple Operations

Question: Write a Python function that takes a list of tuples, where each tuple contains two integers, and returns a list of tuples sorted by the second element in each tuple.

Sample Input:

A = [(1, 3), (4, 2), (2, 5), (3, 1)]

Sample Output:

[(3, 1), (4, 2), (1, 3), (2, 5)]

Question 4: Set Operations

Question: Write a Python function that takes two sets and returns a set containing elements that are in either of the sets but not in both.

Sample Input:

A= ({1, 2, 3}, {3, 4, 5})

Sample Output:

{1, 2, 4, 5}

Question 5: Dictionary Manipulation

Question: Write a Python function that takes a dictionary and returns a new dictionary with keys and values swapped.

Sample Input:

A = {'a': 1, 'b': 2, 'c': 3}

Sample Output:

{1: 'a', 2: 'b', 3: 'c'}