**Section A: List (3 Questions):**

**Section B: Tuple (2 Questions):**

**Section C: Dictionary (3 Questions):**

**Section D: Set (2 Questions):**

Q1. Write a Python program to remove all duplicates from a list without using the set() function. Input Example: [1, 2, 2, 3, 4, 4, 5]

Output: [1, 2, 3, 4, 5]

def remove\_duplicates(lst):

result = []

for item in lst:

if item not in result:

result.append(item)

return result

print(remove\_duplicates([1, 2, 2, 3, 4, 4, 5]))



Q2. Given a list of integers, write a program to find the second highest unique number. Input Example: [12, 5, 9, 21, 21, 3]

Output: 12

def second\_highest\_unique(lst):

unique = list(set(lst))

unique.sort(reverse=True)

return unique[1]

print(second\_highest\_unique([12, 5, 9, 21, 21, 3]))



Q3. Rotate a list to the right by k positions. Input: List = [1, 2, 3, 4, 5], k = 2

Output: [4, 5, 1, 2, 3]

def rotate\_right(lst, k):

k = k % len(lst)

return lst[-k:] + lst[:-k]

print(rotate\_right([1, 2, 3, 4, 5], 2))



Q4. Write a Python program to multiply the elements of each tuple in a list of tuples and return a new list. Input: [(2, 4), (3, 5), (4, 6)]

Output: [8, 15, 24]

def multiply\_tuples(lst):

return [a \* b for a, b in lst]

print(multiply\_tuples([(2, 4), (3, 5), (4, 6)]))



Q5. Given a tuple of integers, write a program to count how many times each element occurs. Input: (1, 2, 2, 3, 1, 4, 2)

Output: {1: 2, 2: 3, 3: 1, 4: 1}

def count\_occurrences(tup):

freq = {}

for item in tup:

freq[item] = freq.get(item, 0) + 1

return freq

print(count\_occurrences((1, 2, 2, 3, 1, 4, 2)))



Q6. Write a Python program to count the frequency of each character in a string using a dictionary. Input: 'banana'

Output: {'b': 1, 'a': 3, 'n': 2}

def char\_frequency(text):

freq = {}

for ch in text:

freq[ch] = freq.get(ch, 0) + 1

return freq

print(char\_frequency("banana"))

7. Merge two dictionaries such that common keys have their values summed. Input: {'apple': 10, 'banana': 5}, {'banana': 3, 'orange': 7}

Output: {'apple': 10, 'banana': 8, 'orange': 7}

def merge\_dicts(d1, d2):

merged = d1.copy()

for key, value in d2.items():

merged[key] = merged.get(key, 0) + value

return merged

print(merge\_dicts({'apple': 10, 'banana': 5}, {'banana': 3, 'orange': 7}))

Q8. Given a dictionary of student names and their marks, print the name(s) of the student(s) with the highest marks.

Input: {'Alice': 85, 'Bob': 92, 'Carol': 92} Output: ['Bob', 'Carol']

Q9. Write a Python program to find all common elements among three lists using set operations. Input: [1, 2, 3], [2, 3, 4], [3, 2, 5]

Output: {2, 3}

def common\_elements(a, b, c):

return set(a) & set(b) & set(c)

print(common\_elements([1, 2, 3], [2, 3, 4], [3, 2, 5]))

Q10. From a sentence entered by the user, extract and display all unique words using a set. Input: 'this is a test this is fun'

Output: {'this', 'is', 'a', 'test', 'fun'}

def unique\_words(sentence):

return set(sentence.split())

print(unique\_words('this is a test this is fun'))