**Ex 1:**

1. numbers = [1,2,3,4,5]

2. numbers.append(6)

3. numbers.remove(3)

4. numbers.insert(0,0)

5. print(numbers)

**Ex 2:**

1. coordinates = (10.0,20.0,30.0)

2. print(coordinates[1])

3. coordinates[2] = 40.0 // 'tuple' object does not support item assignment

**Ex 3:**

1. fruits = {'apple','banana','cherry'}

2. fruits.add('orange')

3. fruits.remove('banana')

4. if 'cherry' in fruits:

print("Yes")

else:

print("No")

5. citrus = {'orange','lemon','lime'}

6. res1 = fruits.union(citrus)

print(res1)

7. res2 = fruits.intersection(citrus)

print(res2)

**Ex 4:**

1. person = {

"name": "John",

"age": 30,

"city": "New York"

}

2. print(person["name"])

3. person["age"] = 31

4. person.update({"email": "john@example.com"})

5. person.\_\_delitem\_\_("city")

6. print(person)

**Ex 5:**

1. school = {

"Alice": {"Math": 90, "Science": 85},

"Bob": {"Math": 78, "Science": 92},

"Charlie": {"Math": 95, "Science": 88}

}

2. print(school["Alice"]["Math"])

3. school["David"] = {"Math": 80, "Science": 89}

4. school["Bob"]["Science"] = 95

5. print(school)

**Ex 6:**

1. numbers = [1, 2, 3, 4, 5]

squared\_numbers = [x\*\*2 for x in numbers]

2. print(squared\_numbers)

**Ex 7:**

1. numbers = [1, 2, 3, 4, 5]

squared\_set = {x\*\*2 for x in numbers}

2. print(squared\_set)

**Ex 8:**

1. cubes = {x: x\*\*3 for x in range(1, 6)}

2. print(cubes)

**Ex 9:**

1. keys = ["name", "age", "city"]

values = ["Alice", 25, "Paris"]

combined\_dict = dict(zip(keys, values))

2. print(combined\_dict)

**Ex 10:**

1. sentence = "the quick brown fox jumps over the lazy dog the fox"

word\_list = sentence.split()

word\_count = {} for word in word\_list:

if word not in word\_count:

word\_count[word] = 1

else:

word\_count[word] += 1

2. print(word\_count)

**Ex 11:**

1. set1 = {1, 2, 3, 4, 5}

set2 = {4, 5, 6, 7, 8}

unique\_elements = set1.union(set2)

common\_elements = set1.intersection(set2)

only\_in\_set1 = set1.difference(set2)

2. print("Unique elements:", unique\_elements)

print("Common elements:", common\_elements)

print("Elements only in set1:", only\_in\_set1)

**Ex 12:**

1. person = ("Alice", 25, "Paris")

name, age, city = person

2. print(name)

print(age)

print(city)

**Ex 13:**

1. text = "hello world"

frequency = {}

for letter in text:

if letter != ' ':

if letter not in frequency:

frequency[letter] = 1

else:

frequency[letter] += 1

2. print(frequency)

**Ex 14:**

1. students = [("Alice", 90), ("Bob", 80), ("Charlie", 85)]

sorted\_students = sorted(students, key=lambda x: x[1], reverse=True)

2. print(sorted\_students)