ANSWER KEY

PYTHON WORKBOOK – SECTION 4

Data Structures in Python

Programmer's Hub – by CodeWithVivek
https://www.youtube.com/@code-with-vivek

4.1 Introduction to Data Structures

4.2 Lists

Debug This:
fruits[6] doesn't exist — list index out of range.

Slicing (nums = [5,10,15,20,25])

Expression Answer

nums[0] [5]

nums[-1] [25]

nums[1:4] [10,15,20]

4.3 Tuples

Cannot modify — tuples are immutable.

4.4 Dictionaries

Debug This:
student[name] → name must be in quotes → "name"

Correct:

student["name"]

4.5 Sets Operations

Given: a = {1,2,3}, b = {3,4,5}

Operation	Result
a.union(b)	{1,2,3,4,5}
a.intersection(b)	{3}
a.difference(b)	{1,2}

Practice Problems – Answers

1. Largest number in list

```
lst = [10,50,20,5]
print(max(lst))
```

2. Word frequency counter

```
sentence = input("Enter sentence: ").lower().split()
freq = {}
for word in sentence:
    freq[word] = freq.get(word,0) + 1
print(freq)
```

3. Remove duplicates using set

```
lst = [1,2,2,3,4,4]
unique = list(set(lst))
print(unique)
```

Mini Assignment – Employee Dictionary

```
employees = {
   1: {"name": "A", "age": 30, "salary": 50000},
   2: {"name": "B", "age": 28, "salary": 60000},
   3: {"name": "C", "age": 35, "salary": 55000},
   4: {"name": "D", "age": 40, "salary": 70000},
   5: {"name": "E", "age": 25, "salary": 52000}
}

# Highest salary
high = max(emp["salary"] for emp in employees.values())

# Average age
avg_age = sum(emp["age"] for emp in employees.values()) / len(employees)

# Uppercase names
for emp in employees.values():
   emp["name"] = emp["name"].upper()

print(high, avg_age, employees)
```