

## CPSC 250 - Python for Data Manipulation - Summer 2025 Test 1)

Topics: Primitive Data Types, Lists & Tuples, Branching, Loops

### Part I – Multiple Choice (10 points)

1. **B. 3**  
10 // 3 performs integer division, result is 3.
2. **A. [1, 2, 3]**  
This is the correct syntax for a list.
3. **A. 8**  
"5" is converted to an integer (5), then 3 is added.
4. **C. Both A and B**  
Both expressions check if x is between 10 and 20 inclusive.
5. **C. 3**  
Index 2 gives the third item in the tuple, which is 3.

### Part II – Find the Error (15 points)

6. **Fix:**  

```
numbers = [10, 20, 30, 40]
print(numbers[3]) # Index 4 is out of range; valid indices are -03
```
7. **Fix:**  

```
for i in range(1, 5):
    print(i * 2) # Indentation was missing
```
8. **Fix:**  

```
count = 5
while count > 0:
    print(count)
    count -= 1 # Logic corrected to count down from 5 to 1
```

## Part III – Code Writing (20 points)

9. **Reverse word, one char per line:**

```
word = input("Enter a word: ")
for i in range(len(word)-1, -1, -1):
    print(word[i])
```

10. **Repeat input until > 100:**

```
num = int(input("Enter a number: "))
while num <= 100:
    num = int(input("Enter a number: "))
```

## Part IV – Code Comprehension and Commenting (15 points)

**Sample commented solution:**

```
# List of integers
values = [2, 5, 9, 12, 3]

# Initialize product to 1
product = 1

# Loop over each value
for v in values:
    # Only multiply values greater than 4
    if v > 4:
        product *= v

# Print final result
print("Product of values greater than 4 is", product)
```

**Output:** Product of values greater than 4 is 540

## Part V – Short Answer (10 points)

11. **Out-of-range index:** You get an IndexError. Example:

```
mylist = [1, 2, 3]
print(mylist[5]) # Error: list index out of range
```

12. **When to use a tuple:** Use a tuple when the data should not change (immutability).  
Example: coordinates, RGB values, or days of the week.

**Total: 70 / 70**