Questions

1. **Write a function unique_elements(lst) that returns a list containing only the unique elements from the given list (order should be preserved).**

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

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

Solution:

```
def unique_elements(lst):
    unique = []
    for item in lst:
        if item not in unique:
            unique.append(item)
    return unique
print(unique_elements([1, 2, 2, 3, 4, 1, 5]))
```

2. **Write a function rotate_list(lst, k) that rotates the elements of a list to the right by k positions.**

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

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

Solution:

```
def rotate_list(lst, k):
    for i in range(k):
        last = lst.pop()
        lst.insert(0, last)
```

```
    return lst
print(rotate_list([1, 2, 3, 4, 5], 2))
```

3. **Write a function longest_word(sentence) that returns the longest word from a given sentence.**

Input: "Python is an amazing programming language"

Output: "programming"

Solution:

```
def longest_word(sentence):
    words = sentence.split()
    longest = ""
    for word in words:
        if len(word) > len(longest):
            longest = word
    return longest
print(longest_word("Python is an amazing programming language"))
```

4. **Write a function sum_of_digits(num) that calculates and returns the sum of digits of a number.**

Input: 12345

Output: 15

Solution:

5. **Write a function char_frequency(s) that returns a dictionary with characters as keys and their frequency as values.**

Input: "hello"

Output:

{'h': 1, 'e': 1, 'l': 2, 'o': 1}

Solution:

```
def char_frequency(s):
freq = {}
for char in s:
freq[char] = s.count(char)
return freq
print (char_frequency("Hello")
```

6. **Print all numbers from 1 to 100 that are divisible by 3 or 5 but not both.**
   Input: Numbers from 1 to 15
   Output: 3 5 6 9 10 12 15

Solution:

```
for i in range(1, 101):
    if i % 3 == 0 and i % 5 != 0:
        print(i, end=" ")
    elif i % 5 == 0 and i % 3 != 0:
        print(i, end=" ")
```

7. **Without using Python's built-in split() and reverse() in one line, reverse the order of words in a sentence using loops.**

Input: "Python is fun"

Output: "fun is Python"

Solution:

8. **For n = 5, print a diamond pattern:**

```
  *
 ***
*****
```

Solution:

```
n = 5
for i in range(1, n + 1):
spaces = " " * (n - i)      # spaces before stars
stars = "*" * (2 * i - 1)   # odd number of stars
print(spaces + stars)
```

9. **Write a program to count how many consonants are in a given string.**

Input: "hello world"

Output: 7

Solution:

```
def count_consonants(text):
    consonants = "bcdfghjklmnpqrstvwxyzBCDFGHJKLMNPQRSTVWXYZ"
    count = 0
    for char in text:
```

```
        if char in consonants:
            count+=1

    print(count)

count_consonants("hello world")
```

10. **Create a loop that keeps asking the user to guess a secret number until they get it right.**

Guess the number: 5

Wrong, try again.

Guess the number: 8

Correct! You guessed it.

Solution :

```
secret_number = 8
while True:
guess = int(input("Guess the number: "))
if guess == secret_number:
print("Correct! You guessed it.")
break
else:
print("Wrong, try again.")
```