Question 1: Write a Python function called **calculate_average** that takes a list of numbers as input and returns the average of those numbers. The function should use a loop to iterate over the list and calculate the average.

Number= [1, 2, 3, 4, 5]

Question 2: Write a Python function called find_duplicates that takes a list of integers as input and returns a list of all the duplicate numbers in the input list. The function should use loops and iterations to find the duplicates.

Numbers = [1, 2, 3, 4, 5, 2, 4, 6, 1, 3]

Question 3: Write a Python function called calculate_shipping that takes two parameters: a string country and a float weight. The function should calculate the shipping cost based on the following rules:

- If the country is "USA" and the weight is less than or equal to 1 kg, the shipping cost is $10.
- If the country is "USA" and the weight is greater than 1 kg, the shipping cost is $20.
- If the country is "Canada" and the weight is less than or equal to 1 kg, the shipping cost is $15.
- If the country is "Canada" and the weight is greater than 1 kg, the shipping cost is $25.
- For any other country, the shipping cost is $50.

The function should return the calculated shipping cost.

Question 4: You are working on a text processing application that needs to validate and extract email addresses from a given text. Write a Python function called extract_emails that takes a string text as input. The function should extract all valid email addresses from the text and return them as a list.

The function should satisfy the following conditions for a valid email address:

1. It should have the format username@domain.extension.
2. The username should consist of alphanumeric characters (including underscore and dot) and can have a length of 1 to 20 characters.
3. The domain should consist of alphanumeric characters (including hyphen) and can have a length of 1 to 20 characters.
4. The extension should consist of lowercase letters only and can have a length of 2 to 3 characters.

Assume that email addresses in the text will be surrounded by spaces or punctuation marks and will not contain any whitespace within the address.

Question 5: Write a Python function called validate_password that takes a string password as input and checks its validity based on the following criteria:

1. The password must be at least 8 characters long.
2. It must contain at least one uppercase letter, one lowercase letter, and one digit.
3. It may contain special characters, but they are not required.

The function should return a boolean value indicating whether the password is valid or not.

Question 6: Write a Python program to check if a given number is even or odd using the modulus operator.

Number=7

Question 7: Write a Python program to calculate the sum of digits in a given number using the modulus operator.

Number: 12345

Question 8: Write a Python program using the modulus operator to check if a given number is divisible by another number.

Number=24

Question 9: Write a Python program that takes a user input string and prints the string in uppercase.

Question 10: Write a program to prompt the user for hours and rate per hour using the input to compute gross pay. Pay should be the normal rate for hours up to 40 and time-and-a-half for the hourly rate for all hours worked above 40 hours

- Put the logic to do the computation of pay in a function called computepay() and use the function to do the computation
- The function should return a value. Use 45 hours and a rate of 10.50 per hour to test the program (the pay should be 498.75). You should use the input to read a string and float() to convert the string to a number. Do not worry about error-checking the user input unless you want to - you can assume the user types numbers properly. Do not name your variable sum or use the sum() function.

Question 11: Write a Python program that prints all the even numbers from 1 to 20.

Question 12: Write a Python program that takes a list as input and performs the following operations:

- Iterate over the elements of the list.
- Check the type of each element and perform the corresponding action:
    - If the element is an integer, square it.
    - If the element is a string, reverse it.
    - If the element is a float, round it to the nearest integer.
    - If the element is a list, reverse its order.
- Store the modified elements in a new list and print the final list.

Question 13: You are developing a program to track the progress of a marathon race. Write a Python program that prompts the user to enter the names and finish times of the top three runners. The program should store this information in variables and display the results in a formatted manner.

Question 14: You are designing a program to calculate the area and circumference of a circle. Write a Python program that prompts the user to enter the radius of the circle and calculates the area and circumference. The program should store the calculated values in variables and display them at the end.

Question 15: You are creating a program that analyzes a given text and counts the occurrence of reserved words in Python. Write a Python program that prompts the user to enter a sentence and counts how many reserved words are present in it. The program should utilize a list of reserved words in Python and iterate over the words in the sentence to check for matches. Finally, it should display the count of reserved words found in the sentence.

Question 16: Write a function called chop that takes a list and modifies it, removing the first and last elements, and returns None.

Question 17: Then write a function called middle that takes a list and returns a new list that contains all but the first and last elements.

Good Luck