Python-Functions

1. What does the len() function do in Python? Write a code example using len() to find the length of a list.

The len() function determines the number of items in an object. It can be applied to various data types, such as strings, lists, tuples, dictionaries, etc.

```
input_list=input("enter the list seperated by space:")
input_list=input_list.split()
print(input_list)
length=len(input_list)
print ("length of input_list is:",length)
```

```
enter the list seperated by space: i am inputing the list details to find the length
['i', 'am', 'inputing', 'the', 'list', 'details', 'to', 'find', 'the', 'length']
length of input_list is: 10
```

2. Write a Python function greet(name) that takes a person's name as input and prints "Hello, [name]!".

```
input_name=input("Enter the name of the person to be greeted:")
# Conver the input name to upper case################
name=input_name.upper()
def greet():  1 usage
    greeting=("Hello")
    print(greeting,name)
greet()
```

```
Enter the name of the person to be greeted:rejith
Hello REJITH
```

3. Write a Python function find_maximum(numbers) that takes a list of integers and returns the maximum value without using the built-in max() function. Use a loop to iterate through the list and compare values.

```
list=input("enter the number seperated by space:")
# use the white space to split
# if the entered number is seperated by comma we can use split(',')
list=list.split()
print(list)
max_number = list[0]
for number in list:
    if number>max_number:
        max_number = number
print ( max_number)
```

```
enter the number seperated by space:45 78 89 56 12 23 75 59 86
['45', '78', '89', '56', '12', '23', '75', '59', '86']
89

Process finished with exit code 0
```

4. Explain the difference between local and global variables in a Python function. Write a program where a global variable and a local variable have the same name and show how Python differentiates between them

Local variables in Python are those which are initialized inside a function and belong only to that particular function. It cannot be accessed anywhere outside the function. Global variables are those which are defined outside any function and which are accessible throughout the program, i.e., inside and outside of every function.

```
s = " Global variable "
def f():
    s=" local variable"
    print(" you defined me inside the function.So i am only a", s)
f()
print("I am Happy you defined me outside Function. So i am a ", s)
```

```
 you defined me inside the function.So i am only a  local variable
I am Happy you defined me outside Function. So i am a   Global variable

Process finished with exit code 0
```

5. Create a function to calculate_area(length, width=5) that calculates the area of a rectangle. If only the length is provided, the function should assume the width is 5. Show how the function behaves when called with and without the width argument. Note: For the theory or explanatory parts of the questions, you may include your explanations as comments within the Python file itself. Alternatively, you can provide detailed explanations in a separate Word/PDF document and upload it along with your assignment.

```python
def rectangle_area(length, width=5):  2 usages
    return (length * width)
# Case 1: Only length is provided
area1 = rectangle_area(10)
print(f"Area with only length provided: {area1}")
# Case 2: Both length and width are provided
area2 = rectangle_area( length: 20,  width: 10)
print(f"Area with both length and width provided: {area2}")
```

```
Area with only length provided: 50
Area with both length and width provided: 200
```

While creating the function, given the default value of the width as 5 , so that each time execute it will take the width as 5. There are two cases one with only the length is provided by the user and it will take the default width assigned and calculate the area. Second case user is providing both the length and width and the system will calculate the area based on the value provided.