**Assignment # 6**

Question 1:

Define Object Oriented Programming Language?

Ans) Object-oriented programming is a programming paradigm based on the concept of "objects", which can contain data, in the form of fields, and code, in the form of procedures. A feature of objects is an object's procedures that can access and often modify the data fields of the object with which they are associated

Question 2:

List down the Benefits of OOP?

Ans)

1. Modularity for easier troubleshooting. Something has gone wrong, and you have no idea where to look.
2. Reuse of code through inheritance.
3. Flexibility through polymorphism.
4. Effective problem solving.

Question 3:

Differentiate between function and method?

A function is a piece of code that is called by name. It can be passed data to operate on (i.e. the parameters) and can optionally return data (the return value). All data that is passed to a function is explicitly passed. A method is a piece of code that is called by a name that is associated with an object.

**Objects:**

Object-oriented programming is modeled on how, in the real world, objects are often made up of many kinds of smaller objects

Question 4:

Define the following terms:

**Class:**

When you write a program in an object-oriented language, you don't define actual objects. You define classes of objects, where a class is a template for multiple objects with similar features. Classes embody all the features of a particular set of objects.

**Attributes:**

Attributes are the individual things that differentiate one object from another and determine the appearance, state, or other qualities of that object. Let's create a theoretical class called Motorcycle. A motorcycle class might include the following attributes and have these typical values:

Color: red, green, silver, brown

Style: cruiser, sport bike, standard

Make: Honda, BMW, Bultaco

**Behavior:**

A class's behavior determines how an instance of that class operates; for example, how it will "react" if asked to do something by another class or object or if its internal state changes. Behavior is the only way objects can do anything to themselves or have anything done to them. For example, to go back to the theoretical Motorcycle class, here are some behaviors that the Motorcycle class might have:

* Start the engine
* Stop the engine
* Speed up
* Change gear
* Stall

Question 5:

Write a code in python in which create a class named it Car which have 5 attributes such like (model, color and name etc.) and 3 methods. And create 5 object instances from that class.

class Car():

def \_\_init\_\_(self, name, model, color):

self.name = name

self.model = model

self.color = color

def modelName(self):

print(f"model name is {self.model}")

def color(self):

print(f"Color is {self.color}")

car1 = Car('Corolla', 2018, 'black')

print(car1.name)

print(car1.model)

print(car1.color)

print("\n")

car2 = Car('BMW', 2017, 'black')

print(car2.name)

print(car2.model)

print(car2.color)

print("\n")

car3 = Car('Mehran', 2013, 'grey')

print(car3.name)

print(car3.model)

print(car3.color)

print("\n")

car4 = Car('Civic', 2016, 'white')

print(car4.name)

print(car4.model)

print(car4.color)