**Assignment # 6**

**Question 1:**

**Define Object Oriented Programming Language?**

An Object is the key component of Object-oriented programming. An Object may contain data (fields or variables) or code (methods or procedures). The creation of these objects is based on a **programmer-defined blue-print** also known as a **Class. O**bject-**o**riented **p**rogramming (**OOP**) refers to a type of computer programming (software design) in which [programmers](https://www.webopedia.com/TERM/P/programmer.html) define the [data type](https://www.webopedia.com/TERM/D/data_type.html) of a [data structure](https://www.webopedia.com/TERM/D/data_structure.html), and also the types of operations ([functions](https://www.webopedia.com/TERM/F/function.html)) that can be applied to the data structure.

**Question 2:**

**List down the Benefits of OOP?**

* The programs written with OOP are really easy to understand.
* Since everything is treated as objects, so we can model a real-world concept using OOP.
* OOP approach offers the reusability of classes. We can reuse the classes that are already created without writing them again and again.
* Programs written in OOP technique are marginally easier to test, manage as well as maintain.
* It is a secured development technique since data is hidden and can’t be accessed by external functions.

**Question 3:**

**Differentiate between function and method?**

* **Functions:** Functions have independent existence. You can define them outside of the class. Functions are the properties of structured languages like C, C++, Pascal and object based language. Functions don't have any reference variables. Functions are a self describing piece of code. Functions are called independently.
* **Method:** Methods do not have independent existence. They are always defined within a class, structure. Methods are the properties of Object-oriented language like C#, Java, Swift etc. Methods are called using reference variables. Methods are used to manipulate instance variable of a class. Methods are called using instance or object.

**Question 4:**

**Define the following terms:**

1. **Class:** The class is a blueprint that defines a nature of a future object. An **instance** is a specific object created from a particular class. Classes are used to create and manage new objects and support **inheritance** a key ingredient in object-oriented programming and a mechanism of reusing code.

**2. Object:** An **Object** is an instance of a Class. When a class is defined, no memory is allocated but when it is instantiated (i.e. an object is created) memory is allocated.

**3. Attribute:** In Object-oriented programming (OOP), classes and objects have attributes. **Attributes**are data stored inside a class or instance and represent the state or quality of the class or instance. In short, attributes store information about the instance.

**4. Behavior:** A class 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 it internal state changes. Behavior is the only way objects can do anything to themselves or have anything done to them.