**Assignment # 6**

Question 1:

Define Object Oriented Programming Language?

Answer : Object-oriented programming (OOP) is a programming language model in which programs are organized around data, or objects, rather than functions and logic. An object can be defined as a data field that has unique attributes and behavior.Examples of an object can range from physical entities, such as a human being that is described by properties like name and address

Question 2:

List down the Benefits of OOP?

Answer:It provides a clear modular structure for programs which makes it good for defining abstract datatypes in which implementation details are hidden

Objects can also be reused within an across applications. The reuse of software also lowers the cost of development. More effort is put into the object-oriented analysis and design, which lowers the overall cost of development.

It makes software easier to maintain. Since the design is modular, part of the system can be updated in case of issues without a need to make large-scale changes

Reuse also enables faster development. Object-oriented programming languages come with rich libraries of objects, and code developed during projects is also reusable in future projects.

It provides a good framework for code libraries where the supplied software components can be easily adapted and modified by the programmer. This is particularly useful for developing graphical user interfaces.

Question 3:

Differentiate between function and method?

Answer: 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. In most respects it is identical to a function except for two key differences:

1-A method is implicitly passed the object on which it was called.

-2A method is able to operate on data that is contained within the class (remembering that an object is an instance of a class - the class is the definition, the object is an instance of that data).

Question 4:

Define the following terms:

1. Class
2. Object
3. Attribute
4. Behavior

Answer:

Class:a class describes the contents of the objects that belong to it: it describes an aggregate of data fields (called instance variables), and defines the operations (called methods).

Object:an object is an element (or instance) of a class; objects have the behaviors of their class. The object is the actual component of programs, while the class specifies how instances are created and how they behave.:

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: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