**Q.1. What is OOP? List OOP concepts**

**OOPS- Object Oriented Programming Language**.

Characteristics of Object oriented programming Language:

• Emphasis on **data** rather than Procedure.

• Program are **divided into Objects.**

• Data is hidden & can not be accessed by External Function.

• Objects may communicate with each other theory Functions.

• Follows **bottom up** approach in program design

Ex: C++

**• List OOP Concepts:**

**1. Class**

**2. Object**

**3. Encapsulation**

**4. Polymorphism**

**5. Inheritance**

**6. Abstraction**

**1) Class:**

• Collection of Objects.

• Class is Collection of **Data Member** & **Member Function (process, method) with its behavior.**

• **3 properties:**

1. Private: (scope resolution operator)

2. Public

3. Protected

**2) Object:**

• **Instance** of Class/

• To **create a Memory** for Class/

• To **access all properties** of class, expect **Private.**

**3) Encapsulation :**

• **Data Hiding**

• **Wrapping up of Data** into Single Unit.

• Ex: Capsule, Mobile

**4) Inheritance :**

• Properties of **Parent Class** derived into **Child Class**.

• Properties of **Super Class** extend into **Sub Class**.

• **5 types of Inheritance :**

i) Single Inheritance

ii) Multi-Level Inheritance

iii) Multiple Inheritance

iv) Hierarchical Inheritance

v) Hybrid Inheritance

**5) Polymorphism :**

• Ability to take one name having different form.

• **2 types** of Polymorphism :

I) **Method OverLoading** (compile time)

II) **Method Overriding** (run time)

**6) Abstraction :**

• Only **Essential part should be shown Rest Part will be Hidden**.

• Ex: Book Index

**Q.2. What is the difference between OOP and POP ?**

|  |  |
| --- | --- |
| **OOP** | **POP** |
| 1. **Project Oriented Pogramming Language** | 1. **Object Oriented Programming Language** |
| 1. **Focus on process rather than data** | **2.It foacus on data rather than process.** |
| **3.Top down approach** | **3. Bottom up approach** |
| **4.Ex: C, FORTAN, PASCAL** | **4.Ex: C++, JAVA, PYTHON** |