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PAGE NO.
DATE : / /

Ans 1- Object Oriented programming (OOPS) Is a method of structuring a program by bundling related properties and behaviour into individual objects.

Features of OOps.

① class: These are collection of objects.

```
class ShanU:
    <statement ....1>
    ----------
    ----------
```

② Object: entity that has state and behaviour

Eg

```
class Class1:
    def __init__(self, model, year):

c1 = car("Honda", 2012)
c1.display()
```

③ Method: function that is acociated with an object in python a method is not unique to class instances.

④ Inheritance: Most important aspect of OOP, which simulates real world concept of inheritance.
Eg An child inherit their properties from parents.

⑤ polymorphism. We have a class animal and all animals speak but they speak differently. They speak behaviour is polymorphic in a sense & depends on the animal. So abstract animals doesn't speak

An polymorphism is the ability to process objects differently on the basis of their class and data types.

⑥ Encapsulation = It is also essential aspect of OOP. In this code & data are wrapped together into a single unit form.

⑦ Data Abstraction = It is used to hide internal data details & show only functionalities.
Eg When we are driving a car, we only concerned about driving the car like stop and break etc.

PAGE NO.
DATE : / /

Ans-2 - There are five types of inheritance

1) Single inheritance
2) Multiple inheritance
3) Multilevel inheritance
4) Micrarchical inheritance
5) Hybrid inheritance

① Single inheritance = This type of inheritance it enables subclass to inherit the properties and characteristics of parent class

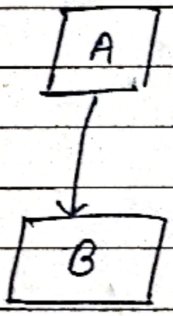
② Multiple inheritance = This inheritance enables child class to inherit the properties and characteristics from more than one parent class.

③ Multilevel inheritance = This inheritance transfer the properties of characteristics is done to more than one class hierarchially

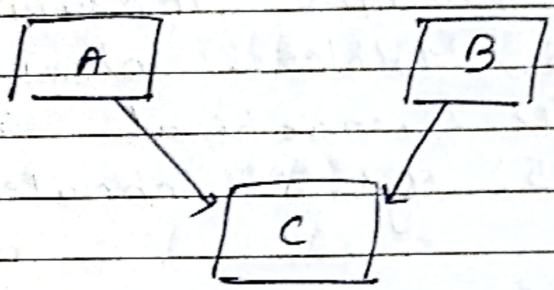
④ Micrarchial inheritance ⇒ This inheritance allows a class to host as a parent class for more than one sub class.

PAGE NO.
DATE : / /

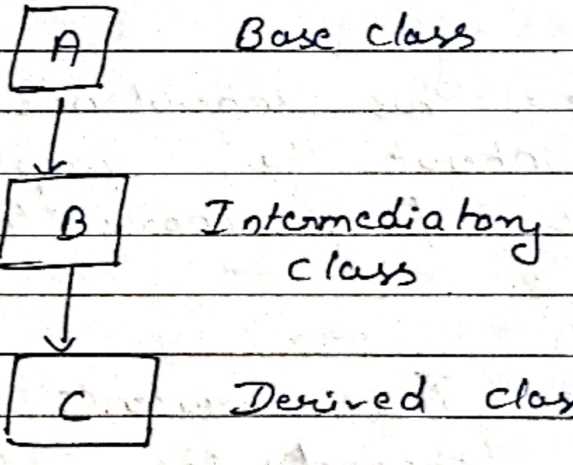
(5) Hybrid inheritance : In this more than one types of inheritance is implemented in same code.



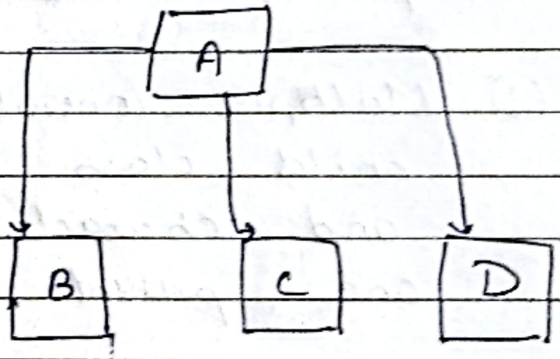
(Single inheritance)



(multiple inheritance)



(Multilevel inheritance)



(Hierarchical inheritance)

1) multilevel = In this type of inheritance a sub class can inherit from its all previous class.

2) Simple = In this type of inheritance there is only one sub-class and one super class.

PAGE NO.
DATE : / /

3) Multiple - In this type of inheritance there are multiple super class and one sub-class inherit them.

4) Hierarchical = In this type of inheritance there is one super class and multiple sub classes.

Ans-3-

```
class Person:
    def __init__ (self,a):
        self.age = a
        self.address = " "
    def __str__ (self):
        return self.address
```

```
class Employee (Person):
    def __init__ (self, s, n):
        self.Salary = s
        self.name = n
        super().__init__ (self, a)

    def SetAddress (self, a)
        self.address = a

    def Salary (self, s)
        self.address = s
```

PAGE NO.
DATE : / /

```
def setName(self,n):
    self.name = n

def ~~getAddress~~(self

def getAddress(self):
    return self.address

def getSalary(self):
    return self.Salary

def getName(self):
    return self.name

obl = Employee("Raj")
print(obl.address)
obl.setName("UPES")
obl.setSalary(2000000)
obl.setAge(21)
print(obl.getName())
print(obl.getSalary())
```