JA 111 C2 Evaluation

Q1) Explain the difference between IS-A and Has-A relationship with the help of an example and explain about access modifiers and their accessibility?

Q2)Create a Student Bean class with the following fields:

roll: Integer
name: String
address: String
marks: Integer

Create a **Demo class** and perform the following operation in the main method:

Take the number as input from the user, How many Student objects need to be created.
Create an array of Students with those numbers.
Initialize all the student objects by taking details from the user.
print all the Student details.
print the average of all the Student marks.

Q3)Create a Java bean class Car that has following fields:

numberOfPassenger :int
numberOfKms:int

Create a class Sedan that extends Car that has following fields:

final int farePerKm =20;

Create a class HatchBack that extends Car that has following fields:

final int farePerKm =15;

Create a class OLA that has following methods-

public Car bookCar(int numberOfPassenger, int numberOfKMs)

public int calculateBill(Car car)

Implement the bookCar method in such a way that if the numberOfPassenger is less than or equal to 3 then you should return the object of HatchBack else you should return the object of Sedan.

Note : Set the fields of HatchBack and Sedan object appropriately.

Implement calculateBill method to calculate the total fare by using-
Total fare=numberOfKms*farePerKm

Create a Main class with main method inside this main method take the input from the user for the number of passengers and number of kms using the Scanner class and call bookCar method using appropriate arguments and use this returned object in the calculate bill method to calculate the total fare.

Eg- main():

```
public static void main(String[] args) {

 Scanner scanner = new Scanner(System.in);

 //Write logic to get numberOfPassenger and numberOfKms

 Ola myOla = new Ola();
 Car myCar = myOla.bookCar(numberOfPassenger, numberOfKms);
 int res = myOla.calculateBill(myCar);

 System.out.println("The total fare amount is"+ res);
}
```

Q4)Make a class Person which **Has-A** relationship with the Address class and has following instance variable-

name :String
gender :String

Address class has following instance variable-

city : String
state : String
pinCode : String

Create another class Instructor which is a child of Person and has following instance variable-

instructorId : int
salary : int

Create another class Student which is a child of Person and has following instance variable-

studentId : int
courseEnrolled : String
courseFee : int

Create a Main class with a following static method-
public static Person generatePerson(Person person);

Inside the main method of this Main class call the generatePerson() method with one object of the student and one object of the instructor class.

And print the same with the help of overriding toString method.

Note : Override toString method in all the classes.

Eg- main():

```
public static void main(String[] args) {

        Person newStudent = generatePerson(new Student());

        Person newTeacher = generatePerson(new Teacher());

        System.out.println(newStudent);
        System.out.println(newTeacher)
 }
```

Sample OutPut:

Student [studentId=1, courseFee=300000, courseEnrolled=JA111, address=Address [city=Chennai, state=TN, pincode=60001]]

Instructor [instructorId =456, salary=45612, address=Address [city=Chennai, state=TN, pinCode=60001]]