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Department of Computer Science and Engineering, University of Barishal Course Code: CSE-2208; Course Title: Object Oriented Programming Lab Session: 2021-2022; Exam: Lab Final	
1. Create a Class for the following (Do not write full code, only structure): - Define a class 'Car' with attributes: 'brand', 'model', 'year', and 'price'. - write all getter and setter method	3
2. Write a Method Overloading Example (Do not write full code, only structure): - Create a class 'Calculator' with overloaded methods 'add(int a, int b)', 'add(double a, double b)', and 'add(int a, int b, int c)' to perform addition.	3
3. Design an abstract class 'Vehicle' with an abstract method 'startEngine()' and concrete methods for 'stopEngine()'. - Write concrete classes 'Car' and 'Motorcycle' that implement the abstract method.	5
4. Distinguish between the following terms and provide suitable examples for each: i) Objects and Classes ii) Inheritance and polymorphism	5
5. Develop a scenario with an example that reflects your overall understanding of this course.	9

Solution of Question No.1:

```

J Question01.java > Car > setYear(int)
1
2 class Car{
3     private String Brand;
4     private String Model;
5     private int Year;
6     private double Price;
7
8     public String getBrand(){
9         return Brand;
10    }
11    public void setBrand(String Brand){
12
13    }
14    public String getModel(){
15        return Model;
16    }
17    public void setModel(String Model){
18
19    }
20    public int getYear(){
21        return Year;
22    }
23    public void setYear(int Year){
24
25    }
26    public double getPrice(){
27        return Price;
28    }
29    public void setPrice(double Price){
30
31    }
32 }

```

Solution of Question No.2:

```

J Question03.java 1  J Main.java 3  J Quesion01.java  J Question02.java 8 X
J Question02.java > Calculator
1  class Calculator{
2      int add(int a, int b){
3
4      }
5      double add(double a, double b){ //Overloading
6
7      }
8      int add(int a, int b, int c){ //Overloading
9
10     }
11 }

```

Solution of Question No.3:

```

J Question03.java > Language Support for Java(TM) by Red Hat > Motorcycle > startEngine()
1  abstract class Vehicle{
2      abstract void startEngine();
3      void stopEngine(){
4
5      };
6  }
7  class Car extends Vehicle{
8      void startEngine(){
9          System.out.println(x:"Starting Car Engine....");
10     }
11 }
12 class Motorcycle extends Vehicle{
13     void startEngine(){
14         System.out.println(x:"Starting Motorcycle Engine.....");
15     }
16 }

```

Solution of Question No.4:

Difference Between Objects and Class are given below:

(i) Object and Class:

Object	Class
1. Objects are instances of a class containing data and behavior.	1. A class is a blueprint or template for creating objects.
2. Objects occupy memory during runtime.	2. Classes do not occupy memory until an object is instantiated.
3. Car myCar = new Car(); (Here, myCar is an object.)	3. class Car {} (Here, Car is a class.)

(ii) Inheritance and Polymorphism:

Inheritance	Polymorphism
1) Enables one class to acquire properties and methods of another.	1) Enables a single function or method to behave differently based on context.
2) Used to promote code reuse and establish a parent-child hierarchy.	2) Used to implement method overriding and method overloading.
3) class Dog extends Animal {} (Dog inherits from Animal.)	3) animal.sound() (Different sounds for Dog, Cat via overriding.)

5. Write a complete scenario with an example that reflects your overall understanding of this course. (21-22, 20-21, 19-20, 18-19)

Solution of Question No.5:

Please Download the PDF file named, “OOP LAB FINAL ALL SEMESTER SOLVE (writing part only). [will find the answer in question no. 7]”.

Thank You.....

