

Question 1:

```
import java.util.Scanner;

class shape{
    Scanner sc= new Scanner(System.in);
    int getsides (){
        int sides;

        System.out.println("enter number of sides");
        sides=sc.nextInt();
        return sides;
    }
}

class rectangle extends shape{
    void getarea(){
        int s=getsides();
        int[] si= new int[s];
        for(int i=0;i<s;i++){
            System.out.println("enter length of side");
            int temp=sc.nextInt();
            si[i]=temp;
        }
        // assuming sides are in cyclic order
        System.out.println("Area = "+si[0]*si[1]);
    }
}

class q1{
    public static void main(String[] args){
        rectangle r=new rectangle();
        r.getarea();
    }
}
```

```
PS D:\oops in java\29082023> javac q1.java
PS D:\oops in java\29082023> java q1
enter number of sides
4
enter length of side
2
enter length of side
3
enter length of side
2
enter length of side
3
Area = 6
PS D:\oops in java\29082023> |
```

Question 2:

```
class animal{
    void walk(){System.out.println("Walking");}
}
class birds extends animal{
    void fly(){
        System.out.println("Flying");
    }
}
class melody extends birds{
    void sing(){
        System.out.println("Singing");
    }
}
class q2{
    public static void main(String[] args){
        melody m=new melody();
        m.walk();
        m.fly();
        m.sing();
    }
}
```

```
PS D:\oops in java\29082023> javac q2.java
PS D:\oops in java\29082023> java q2
Walking
Flying
Singing
PS D:\oops in java\29082023> |
```

Question 3:

```
import java.util.Scanner;
```

```
class vehicle{
    String make;
    String model;
    int year;
    String fueletype;
    int fueleffi;
    int distra;
    int maxsp;
    Scanner sc = new Scanner(System.in);
    void getvehi(){
        System.out.println("enter maker");
        this.make=sc.nextLine();
        System.out.println("enter model");
        this.model=sc.nextLine();
        System.out.println("enter fueletype");
        this.fueletype = sc.nextLine();
        System.out.println("enter year");
        this.year=sc.nextInt();

    }
}

class truck extends vehicle{
```

```

void pro(){
    fueleffi=20;
    distra=200000;
    maxsp=120;
    getvehi();
    System.out.println("vehicle type: truck");
    System.out.println("make:"+make);
    System.out.println("model:"+model);
    System.out.println("year:"+year);
    System.out.println("fueltype:"+fuletype);
    System.out.println("fuel efficiency: "+fueleffi);
    System.out.println("distance travelled: "+distra);
    System.out.println("maximumspeed: "+maxsp);
}
}

class car extends vehicle{
    void pro(){
        fueleffi=30;
        distra=2000;
        maxsp=180;
        getvehi();
        System.out.println("vehicle type: car");
        System.out.println("make:"+make);
        System.out.println("model:"+model);
        System.out.println("year:"+year);
        System.out.println("fueltype:"+fuletype);
        System.out.println("fuel efficiency: "+fueleffi);
        System.out.println("distance travelled: "+distra);
        System.out.println("maximumspeed: "+maxsp);
    }
}

```

```

class motorcycle extends vehicle{
    void pro(){
        fueleffi=40;
        distra=20000;
        maxsp=220;
        getvehi();
        System.out.println("vehicle type: vehicle");
        System.out.println("make:"+make);
        System.out.println("model:"+model);
        System.out.println("year:"+year);
        System.out.println("fueltype:"+fuletype);
        System.out.println("fuel eficiency: "+fueleffi);
        System.out.println("distance travelled: "+distra);
        System.out.println("maximumspeed: "+maxsp);
    }
}

public class q3 {
    public static void main(String[] args){
        truck tr=new truck();
        tr.pro();
        car c=new car();
        c.pro();
        motorcycle mc= new motorcycle();
        mc.pro();
    }
}

```

```
PS D:\oops in java\29082023> javac q3.java
PS D:\oops in java\29082023> java q3
enter maker
tata
enter model
t1
enter fueltype
desel
enter year
2013
vehicle type: truck
make:tata
model:t1
year:2013
fueltype:desel
fuel efficiency: 20
distance travelled: 200000
maximumspeed: 120
enter maker
volvo
enter model
vol
enter fueltype
desel
enter year
2020
vehicle type: car
make:volvo
model:vol
year:2020
fueltype:desel
fuel efficiency: 30
distance travelled: 2000
maximumspeed: 180
enter maker
tvs
enter model
```

```
enter maker
tvs
enter model
tv45
enter fueltype
petrol
enter year
2022
vehicle type: vehicle
make:tvs
model:tv45
year:2022
fueltype:petrol
fuel efficiency: 40
distance travelled: 20000
maximumspeed: 220
PS D:\oops in java\29082023> |
```