

UNITED INTERNATIONAL COLLEGE
MIDTERM Exam Answer Sheet, Semester 2 of 2022-2023 Academic Year

Course Title: Object-Oriented Programming	Date: 19:20 - 20:20, Apr. 13, 2023
Student Name (CN):	Student ID:
Section Number:	Seat Number:

Part 1: Multiple choices (total 20 marks)

Fill your answers in the table below:

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
C	B	D	B	D	A	C	A	A	B

Part 2: Insert the missing part (total 10 marks)

Fill your answer in the table below:

(1)	(2)	(3)	(4)	(5)
primitive	(int)	sqrt	day	case
(6)	(7)	(8)	(9)	(10)
case	break	default	for	cars

Part 3: Short answer questions (total 45 marks)

```
// Q1 Ans here. (8 marks)
//Part3Q1- Animal.java & Swimmable.java, totally 8 marks.
// Grading scheme by Siyu TENG
public class Animal {
    private String name;

    public Animal() {
        setName("Harley");
    }

    public Animal(String name) {
        this.setName(name);
    }

    public String getName() {
        return name;
    }

    public void setName(String name) {
        this.name = name;
    }
}

public interface Swimmable {
    public void swim();
}
```

```
//Q2 Ans here. (10 marks)
//Part3Q2 - Pet.java, totally 10 marks
// Grading scheme by Frank LI

public abstract class Pet extends Animal {
    private int energy; // 1分
    public Pet() { // 1分
        energy = 10;
    }
    public Pet(String name, int energy) { // 2分
        super(name);
        this.energy = energy;
    }
    public void setEnergy(int energy) { // 1分
        this.energy=energy;
    }
    public int getEnergy() // 1分
    {
        return energy;
    }
    public boolean isHealthy() // 2分
    {
        if(energy>=5)
            return true;
        else
            return false;
    }
    public abstract void eat(int food); // 1分

    public abstract void play(); // 1分
}
```

```

//Q3 Ans here. (15 marks)
//Part3Q3 - Cat.java, totally 7 marks
// Grading scheme by Helen WU

public class Cat extends Pet {
    // 第一个构造函数 1分
    public Cat() {
    }
    // 有第二个构造函数 1分, energy 设置为10 1分
    public Cat(String name) {
        super(name, 10);
    }

    @Override
    public void eat(int food) {
        // TODO Auto-generated method stub
        // int 1分, 边界food+1 2分
        int actual_eat = (int) (Math.random() * (food + 1));
        this.setEnergy(this.getEnergy() + actual_eat);
    }

    @Override
    //正确实现1分
    public void play() {
        // TODO Auto-generated method stub
        this.setEnergy(this.getEnergy() - 1);
    }
}

//Part3Q3 - Dog.java, totally 8 marks
public class Dog extends Pet implements Swimmable {
    // 第一个构造函数 1分
    public Dog() {
    }
    //有第二个构造函数 1分, energy 设置为10 1分
    public Dog(String name) {
        super(name, 10);
    }

    @Override
    //有+food 1分
    public void eat(int food) {
        // TODO Auto-generated method stub
        this.setEnergy(this.getEnergy() + food);
    }

    @Override
    //random 1分, 大于0.5 1分, 调用swim 1分
    public void play() {
        // TODO Auto-generated method stub
        this.setEnergy(this.getEnergy() - 2);
        if (Math.random() >= 0.5) {
            swim();
        }
    }
    //正确实现1分
    @Override
    public void swim() {
        // TODO Auto-generated method stub
        this.setEnergy(this.getEnergy() - 1);
    }
}

```

```
// Q4 Ans here. (12 marks)
//part3Q4 - Person.java totally
// Grading scheme by Haowei LIN
```

```
public class Person extends Animal {
    public Person() { //1分
    };

    public Person(String name) { //1分
        super(name);
    }

    public void dailyCare(Pet p) { //0.5分
        if (p.isHealthy()) { //调用ishealthy 1分
            if (p instanceof Dog) { //instanceof 1分
                p.eat(2); //调用eat(), 2 energy, 1分
            } else
                p.eat(1); //1分
            p.play(); //1分
        } else {
            p.eat(2); //1分
        }
    }

    public void checkStatus(Pet p) { //0.5分
        if (p.isHealthy()) //每个print 1.5分
            System.out.println(p.getName() + " is healthy, energy is " + p.getEnergy());
        else
            System.out.println(p.getName() + " is not healthy, energy is " + p.getEnergy());
    }
}
```