

Information and Computer Science Department
Spring Semester 192
ICS 201 - Introduction to Computing II
Midterm Exam Output
Thursday March 5, 2020
Duration: 30 minutes

Name:

ID#:

--	--	--	--	--	--	--	--	--

Section#:

1	2	4
---	---	---

Question # 1[20 points]

What is the output of the following program?

```
public class Super {
    public Super() {
        System.out.println("S1");
    }

    public Super(int n) {
        System.out.println("S2");
    }

    public void m1() {
        System.out.println("M1");
    }

    public void m2() {
        System.out.println("M2");
    }

    public static void m3() {
        System.out.println("M3");
    }

    public static void m4() {
        System.out.println("M4");
    }
}

public class Sub extends Super {
    public Sub() {
        System.out.println("S3");
    }

    public Sub(int n) {
        System.out.println("S4");
    }

    public void m1() {
        System.out.println("M5");
    }

    public static void m3() {
        System.out.println("M6");
    }
}
```

```
public class MidQ1 {
    public static void main(String[] args) {
```

Super s1 = new Sub(10);	
Sub s2 = new Sub();	
s1.m1();	
s1.m2();	
s1.m3();	
s1.m4();	
s2.m1();	
s2.m2();	
s2.m3();	
s2.m4();	

```
    }
}
```

Question # 2[10 points]

What is the output of the following program?

```
public class MidQ2 {
    public static void main(String[] args) {
        try {
            m(-1);
            System.out.println("1");
        }
        catch (Exception e) {
            System.out.println("2");
        }
        System.out.println("3");
    }

    public static void m(int n) throws Exception {
        try {
            if (n < 0) {
                System.out.println("4");
                throw new Exception();
            }
            else {
                System.out.println("5");
            }
            System.out.println("6");
        }
        finally {
            System.out.println("7");
        }
        System.out.println("8");
    }
}
```

Information and Computer Science Department
Spring Semester 192
ICS 201 - Introduction to Computing II
Midterm Exam Programming
Thursday March 5, 2020
Duration: 120 minutes

Name:

ID#:

--	--	--	--	--	--	--	--	--	--

Section#:

1	2	4
---	---	---

Question # 3[35 points]

A friend of you has opened a new Coffee Shop and wants you to help him creating a system that simplifies the sales for him. Right now, he is selling drinks. A drink has a name and a price. A drink is either classic or custom that let the customer add up to 3 flavors. The flavor has a name and a price. If the customer orders classic drink, he will be charged the price of his drink only but if he orders a custom drink, he will be charged the price of the drink in addition to the price of each flavor he adds.

Using object-oriented concepts (encapsulation, information hiding, inheritance, polymorphism, abstract classes, interfaces), Design a hierarchy of classes for the above system. Flesh your classes with constructors, the getPrice method that returns the total price of the drink, the equals method, the toString method, and the clone method.

Question # 4[35 points]

Given the text file "unsortedStudents.txt" that has IDs and names of students in a course, write a program that creates a new text file "sortedStudentsByID.txt" in which the students are sorted by IDs in an increasing order. The first line of the text files has the number of students in the course.

The text file "unsortedStudents.txt"

```
10
201962660 ZIYAD
201930180 MUSTAFA
201953700 MOHAMMAD
201901460 JEHAD
201925220 HASAN
201973190 ABDULAZIZ
201945440 MAHMOUD
201965470 AHMAD
201994720 AMMAR
201983290 HUSSEIN
```