United International University
Department of Computer Science and Engineering

CSI 211: Object Oriented Programming Final Exam: Summer 2018

Total Marks: 40 Time: 2 hours

There are FOUR questions. Figures in the right-hand margin indicate full marks.

1. (a) What are the different stages in the life cycle of a thread? What is the method that starts the execution of a thread? (2)

   (b) Write necessary code to design a GUI like fig.1 and after clicking the button show a message like fig.2. (8)

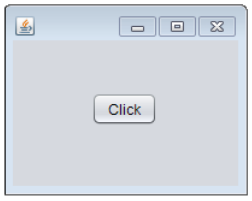

fig. 1

fig. 2

OR,

   (a) Describe **FlowLayout** using necessary figures. (2)

   (b) Write a JAVA program that contains two buttons, **Button_1** and **Button_2**. (8)

   i. Initially **Button_1** has Red background and **Button_2** has Blue background

   ii. On clicking **Button_1**, if **Button_1**'s background is Red, it changes to Green. If **Button_1**'s background is Green, it changes to Red.

   iii. On clicking **Button_2**, if **Button_2**'s background is Blue, it changes to Cyan. If **Button_2**'s background is Cyan, it changes to Blue.

2. (a) Add necessay lines to ExampleThread so that it prints **A: 3, A: 2, A: 1** sequentially after giving 1 second pause and create one thread object in ThreadExercise class and set it's name to **A**. (5)

```
public class ExampleThread implements Runnable{
    String name;
    Thread t;
    ExampleThread(String threadname)
    {
        name=threadname;
        t=new Thread(this,name);
        System.out.println("New thread: "+t);
        t.start();
    }
    //Add Your Code Here
}
```

```
public class ThreadExercise {
    public static void main(String[] args) {
        //Add Your Code Here
    }
}
```

OR,

   (a) Design the layout of a simple TicTacToe game.

(b) There is a file **bookData.txt** that contains the data for the number of new books to be bought for different courses in a university. The file contains several lines in the format: CourseName-NumberOfBooks. Write a program that will read the file. Then it will find out the course which will need the maximum number of books and write it in similar format in an output file called **total.txt**. (1+3+1)

Sample Input File:	Sample Output File:
CSE211-10 CSE212-15	CSE212-15

3. (a) Write a JAVA class named App which contains the **inputTaker()** method and takes n integers as input from users. This method will throw an exception named **NegativeIntegerException** if any integer is less than zero. Also write code for **NegativeIntegerException** as well. (5)

(b) Write necessary code to take a string from user and then reverse it. (5)

Sample Input:	Sample Output:
LaLa Land	dnaL aLaL

OR,

(b) Rewrite this program using anonymous inner class.

```
abstract class Animal {
    public abstract void makeSound();
}
class Bird extends Animal{
    public void makeSound() {
        System.out.println("Chirp");
    }
}
```

```
public class Test {
    public static void main(String[] args)
{
        Bird obj=new Bird();
        obj.makeSound();
    }
}
```

4. (a) Complete the empty blocks into the code snippet as instructed. (5)

```
public class BankAccount {
    String name, id;
    double balance;
    public BankAccount(String name, String id, double balance)
    {
        this.name=name;
        this.id=id;
        this.balance=balance;
    }
}
```

```
public class TestBankAccount {
    public static void main(String[] args) {
        //Create an ArrayList/List named accounts
        //Add the following BankAccount to accounts
        //"Rasha", "011123", 12000
        //"Keya", "011124", 10500
        //"Asad", "011125", 100000
        //Sort the accounts in ascending order
        //Print the accounts information in following format
        //Keya-011124-10500.0
        //Rasha-011123-12000.0
        //Asad-011125-100000.0
    }
}
```

OR,

(a) Suppose a balloon seller is giving you a balloon every minute. Each balloon has a color, a serial number, and a size. You can receive multiple ballons of the same color.

i. Suppose you want to keep track of how many different colors of balloon you have using a JAVA program. Which JAVA collection interface are you going to use? Explain why. Write the necessary code for the task.

ii. Suppose you want to keep track of all the different balloons using a JAVA program. Which JAVA collection interface are you going to use? Explain why. Write the necessary code for the task. (Hint: Create and use a class named Balloon)

(b) Write the output of the following code. (5)

```
public class TestException {
	public static void main(String[] args) {
		int num=4;
		try{
			try{
				throwException(num);
			}
			catch(InputMismatchException e){
				System.out.println("Inner catch "+e.getMessage());
				throwException(++num);
			}
			finally{
				System.out.println("I am out of here");
			}
		}
		catch(Exception e){
			System.out.println("Outer catch "+e.getMessage());
		}
	}
	public static void throwException(int num){
		if(num%2==0){
			throw new InputMismatchException("can't be an even number");
		else if(num%5==0){
			throw new NumberFormatException("can't be a multiple of 5");
		}
		else{
			System.out.println("Input: "+5);
		}
	}
}
```