Final Exam F2022
Version B

Please **DO NOT START** the exam until instructed, out of fairness to all students. 90 minutes.

Score: _____ / 66 pts

Name: ____________________________
1. Complete the code below that performs the following functionality: (10 points)

Write code that takes an array of integers and returns a string of all the even integers in the array, concatenated together.

For example, if the input is \{7, 2, 3, 1, 4, 6, 3, 4\} your code would return the string “2464”

```java
public __________________________ convertArr(________________________ inputArray)
{
    String result = ""; //this creates an empty string

    ________________________________
```

```java
return ________________________________ ;
```

```java
}
```
2. Complete the code below that performs the following functionality: (17 points)

Write code that checks if a two dimensional list of integers has a row that starts and ends with the same number; if it does, return the index of the last row where this happens. If it never happens, return -1.

For example, if the input is
{{1, 3, 4, 2, 1},
 {2, 3},
 {3, 3, 3, 3, 1},
 {4, 1, 2, 4},
 {5, 3, 2}}

Your code would return the integer 3, corresponding to the second to last row.

```java
public __________________________ check(________________________ inputArray) {
    return __________________________ ;
}
```
3. Complete the code below that performs the following functionality: (13 points)

Write code that finds the index of the last word in an `ArrayList` of `Strings` that matches the string CAT. For example, if the contents of the `ArrayList` looked like:

DOG
CAT
BIRD
HOUSE
CAT
MOUSE

your code would return 4. If the string is not in the `ArrayList`, your code should return -1.

You must correctly use generics in your answer in all applicable places for full credit, as well as compile.

```java
import ______________________________;

public _______________ firstAB(___________________________ words)
{
    return ______________________________ ;
}
```
Multiple choice (7 points) – circle the best answer

4. Which of the following is true about the constructors for a class called Person?
   a. You can call the default constructor Person() without having written one.
   b. You can write multiple constructors for the Person class.
   c. A constructor can be called without the new keyword, or with it, for Person.
   d. A and B
   e. B and C
   f. A, B, and C

5. A private method can only access private attributes/fields in the same class.
   a. True
   b. False

6. A private method can only access other private methods in the same class.
   a. True
   b. False

7. A static method can only access static attributes/fields in the same class.
   a. True
   b. False

8. A static method can only access other static methods in the same class.
   a. True
   b. False

9. A public method can only access other public attributes/fields and methods in the same class.
   a. True
   b. False

10. What gets stored in num1 after the assignment int num1 = (int) 1.3;
    a. 0 (an integer)
    b. 0.0 (a floating point)
    c. 1 (an integer)
    d. 1.0 (a floating point)
    e. 1.3
scratch paper
11. What is the output of the following code? (19 points)

```java
public class Exam5{
    private static int count = 4;
    private int[] ages = new int[3];
    private boolean found = true;

    public Exam5(int count, boolean foundIn){
        ages[1] = count;
        count++;
        found = foundIn;
        this.count++;
    }

    public int[] func1(int num1){
        this.ages[num1] = 7;
        num1++;
        return ages;
    }

    public static void main(String[] args){
        int num1 = 5;
        Exam5 exam1 = new Exam5(num1, false);
        System.out.println(exam1.found);
        System.out.println(exam1.count);
        System.out.println(exam1.ages[0]);
        System.out.println(exam1.ages[1]);
        num1 = 0;
        Exam5 exam2 = new Exam5(num1, false);
        System.out.println(exam2.found);
        System.out.println(exam2.count);
        System.out.println(exam2.ages[0]);
        System.out.println(exam2.ages[1]);
        System.out.println(exam1.found);
        System.out.println(exam1.count);
        exam1.ages[0] = 9;
        exam1.ages[1] = 10;
        System.out.println(exam1.ages[0]);
        System.out.println(exam1.ages[1]);
        System.out.println(exam2.ages[0]);
        System.out.println(exam2.ages[1]);
        int[] array = exam1.func1(num1);
        System.out.println(num1);
        System.out.println(exam1.ages[0]);
        System.out.println(exam1.ages[1]);
        array[1] = 3;
        System.out.println(exam1.ages[0]);
        System.out.println(exam1.ages[1]);
    }
}
```

WRITE YOUR OUTPUT HERE
Extra credit (2 points):

Name one thing that didn’t work for you this semester, that we should change for next semester (you can say NONE and still get full extra credit here):

Name one thing that worked for you this semester, that we should keep doing next semester (you can say NONE and still get full extra credit here):