Multiple Choice Questions:

1. We know that a byte range is from -2^7 to (2^7) - 1 inclusive. Find the final amount of teeth.

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

   byte teeth = 127, tooth = 3;

   teeth += tooth;
   teeth -= tooth*2.5;

   System.out.println("Number of teeth is " + teeth);
}
```

a) 122
b) 123
c) 124
d) runtime error
e) 0

2. Which of the following type of variables is accessible by another class in the same file?

A. Private
B. Protected
C. Default
D. Public

3. What is the output of this code?

```
int[] myArray  = {1, 2, 3, 4, 5, 6, 7, 8, 9};
int[] newArray = new int[9];
for (int i = 0; i < myArray.length - 1; i++){
      newArray[i] = myArray[i];
}
for (int i = newArray.length-1; i >= 0; i--){
      System.out.print(myArray[i] + ", ");
}
```

A. 9, 8, 7, 6, 5, 4, 3, 2, 1,
B. 8, 7, 6, 5, 4, 3, 2, 1
C. 0, 8, 7, 6, 5, 4, 3, 2,
D. 0, 8, 7, 6, 5, 4, 3, 2, 1,

4. Since we as humans have 10 fingers, we like to do arithmetic in base 10 numbers. Suppose we encounter 3 alien species who have 2, 8, and 16 fingers and they do arithmetic in base 2, 8, and 16 respectively. Suppose the 157 in base 10 bears some significance and we have to convert it into each species' base. What would the appropriate conversion be?

A.) 10011101, 235, 9D
B.) 10111001, 532, D9
C.) 10011101, 235, 913
D.) 10111001, 532, 913

5. What's the output of the following program?

```
enum Direction
{
   Up, Down, Left, Right
}

public class ConnectFour
{
   public static void main(String[] args)
   {
       Direction[] moves = new Direction[4];
       moves[3] = Direction.Left;
       moves[2] = Direction.Up;
       moves[1] = Direction.Right;
       moves[0] = Direction.Down;

       if(moves[0] == Direction.Up)
           System.out.println(Direction.Up);
       else if(moves[3] == Direction.Left)
           System.out.println("2");
       else if(moves[2] == Direction.Up)
           System.out.println(Direction.Down);
       else
           System.out.println(" 1");
   }
}
```

a. Down 1
b. Down
c. 2
d. 2Down 1

Free Response Questions:

1. Write a method with declaration to reverse the given array.

2. What is the output of the following program? Show your work.

```
public static void main(String[] args) {
      int[] myArrA = new int[4];
      int myArrB[] = new int[]{5,6,7,8};
      int[] myArrC;

      myArrC = myArrA;

      for (int i = 0; i < myArrA.length; ++i)
            myArrA[i] = i+1;

      for (int j = 0; j < myArrA.length; j++)
            myArrC[j] += (j % 2 == 0)? myArrB[j] - myArrA[j] : myArrB[j] +
            myArrA[j];

      for (int i : myArrC)
            System.out.print(i+" ");
}
```

3. Method / Constructor Overloading
   A. What are the parts of a method signature? What can you change in the signature to overload a method?
   B. What is the output of this program if it compiles?

```
public class Corgi{
       private String name;
       public Corgi(String name){
              this.name = name;
       }

       public void hungry(boolean isHungry){
              if(isHungry == true){
                     System.out.println("Feed me");
              }
              else{
                     System.out.println("I am floofy");
              }
       }
       public void hungry(boolean isHungry, int numTreats){
              if(isHungry == true && numTreats > 0){
                     System.out.println("Hi I would like " + numTreats + " treats pls");
              }
              else {
                     System.out.println("I am not hungry for treats");
              }
       }
       public int hungry(boolean isHungry(boolean isHungry, int numTreats)
              if(isHungry == true && numTreats > 0){
                     return numTreats--;
              }
              else {
                     return ++numTreats;
              }
```

```
	}

	public static void main(String[] args){
		Corgi ned = new Corgi("Ned");
		ned.hungry(true,5);
	}
```

C. If the last version of the hungry() method above was deleted, what would the output of the program be?

4. What is the output of the following code?

```
public class Student {
    public int grade;

    public Student(int g) {
        grade = g;
    }

     public static void increaseGrades(int[] grades, Student  student, int
     grade) {
        grades[0] += 25;
        student.grade = 100;
        grade = 101;
    }

    public static void main(String[] args) {
        int[] grades = {85, 80, 90};
        Student bob = new Student(grades[1]);
        int gradeX  = grades[2];
        increaseGrades(grades, bob, gradeX);
        System.out.println(grades[0] + bob.grade + gradeX);
    }
}
```

5. Given the following class definition,

```
public class Hero {
	String name;
	int power;
	static int heroCount = 0;

	public Hero(String name, int power) {
		this.name = name;
		this.power = power;
		heroCount++;
	}

	static void death(int deathCount) {
		heroCount -= deathCount;
	}
}
```

What is the output of the following code snippet?
Assume that the main method is implemented and ran properly

```
public static void main(String args[]) {
      Hero jim = new Hero("jim", 12);
      Hero pam = new Hero("pam", 9);
      Hero andy = new Hero("andy", 4);
      jim.heroCount--;

      Hero erin = new Hero("erin", 10);
      Hero michael = new Hero("michael", 7);

      erin.death(2);

      System.out.println(Hero.heroCount);
}
```

6. Given the following program

```
public class Main {

    public static void main(String[] args) {
          int[][] arr1 = new int[15][0];
          int[][] arr2 = arr1;
          arr1[0] = new int[] {6,7,8,9,10,11,12,13};    //Line 3
          arr2[0] = new int[]{ 1,2,3,4,5};            //Line 4
          arr1[1] = arr2[2] = arr1[0];

          arr1[1] = new int[] {-1,-2,-3,-4, -5 };           //Line 6

          arr2[2][0] = arr1[1][3];
          arr2[2][4] = arr2[1][4];

         for (int i = 0; i < arr2[2].length; i++) {
                  arr2[2][i] *= 2;
                  System.out.println(arr2[2][i]);
               }
    }
}
```

What is the output of the following code snippet?

7. Design a Bank Account class. A bank account will contain a double to hold the remaining balance and an email (String).
If a bank account is created without an email, the default balance will be equal to 100.00. If an email is provided while creating a bank account, the balance will be equal to 1.5 times the length of the email.
Additionally, all bank accounts will have a function call account Information that will print the account balance if the email was provided; otherwise, it will print "Inactive account."

Example 1 output (Default bank account, no email provided)
Inactive account.

Example 2 output (email = "abc@ufl.edu")
Balance: 16.5

8. Given the following program

```
public class Test {

    public static void main(String[] args) {
        String output = "";
        String master = "The-Quick-Brown-Fox-Jumped-Over-The-Lazy-Dog";
        String temp = master.substring(4, 9);
        output = temp + master.substring(31, 44);

         if(master.substring(0,3).equals("the")){
            output+= " true";
         }
         else{
             output+= " false";
         }

        System.out.println(output);

    }
}
```

8.1 What will the print statement print out?

8.2 What could you change in the italicized line in order to make the statement true?

9. Write a method “isPalindrome” that takes a single-word String as a parameter, and returns a boolean value. isPalindrome should return ***true*** if the String parameter is a palindrome, and ***false*** if it isn’t a palindrome. *You can assume that the String parameter will have lowercase characters only. The String parameter can be of any length, including 0. Strings of length 0 and 1 are to be considered palindromes in this case*.