Question 1 ........................................................................................................ (5 points)
Write a complete Java program that prints “Go ’Diggers!”.

Question 2 ........................................................................................................ (5 points)
In the Java statement

```java
public static final float TWO = 2.0f;
```

what is the meaning of
- the keyword `static`?
- the keyword `final`?
- the `f` in `2.0f`?

Question 3 ........................................................................................................ (5 points)
Java has two types of real numbers: floats and doubles. We must often convert between these types.
(a) [2 points] Write a Java statement that converts a float `x` to a double `y`.

(b) [2 points] Write a Java statement that converts a double `x` to a float `y`.

(c) [1 point] If you first convert a float to a double and then convert that double to a float, will the result equal the float that you started with?
Question 4 ................................................................. (5 points)
What is printed by the following program fragment:

```
for (int n=100; n>0; n=n/2) {
    if (n%2==1)
       System.out.println("n="+n);
}
```

Question 5 ................................................................. (5 points)
Complete the following method:

```
/**
 * Uses a loop to compute and return the smallest integer power
 * of 3 that is not less than a specified positive integer.
 * For example, if n = 10, then this method returns 27.
 * @param n a positive integer.
 * @return smallest power of 3 (1, 3, 9, 27, ...) not less than n.
 */
public static int findPowerOf3(int n) {
}
```

Question 6 ................................................................. (5 points)
Complete the following method:

```
/**
 * Returns the median (middle value) of the three specified values.
 */
public static double median(double a, double b, double c) {
}
```
import java.util.Random;

/**
 * A bag of white and black beans.
 */
public class BeanBag {    

    /**
     * The colors black and white.
     */
    public static final int BLACK = 0;
    public static final int WHITE = 1;

    /**
     * Constructs a bag with the specified numbers of beans.
     * @param nblack number of black beans.
     * @param nwhite number of white beans.
     */
    public BeanBag(int nblack, int nwhite) {

    }

    /**
     * Returns the total number of beans in the bag.
     * @return the number of beans.
     */
    public int countBeans() {

    }

    /**
     * Determines whether this bag is empty.
     * @return true, if empty; false, otherwise.
     */
    public boolean isEmpty() {

    }
/**
 * Adds one black bean to this bag.
 */
public void addBlack() {
}

/**
 * Adds one white bean to this bag.
 */
public void addWhite() {
}

/**
 * Removes one bean from this bag, which is assumed to not be empty.
 * If this bag contains both black and white beans, then this method
 * randomly selects the color of the bean returned.
 * @return the color of the bean removed.
 */
public int removeBean() {
}
/**
 * Determines whether this bean bag equals the specified bean bag.
 * Two bean bags are equal if they contain the same numbers of black
 * and white beans.
 */
public boolean equals(Beanbag bag) {

}

// declare
// private
// fields
// here

public class BeanBagDemo {

/**
 * Using the class BeanBag defined above,
 * (1) constructs a bean bag with 2 black and 3 white beans.
 * (2) while the bag is not empty,
 * removes one bean from the bag and
 * prints the color of the bean removed.
 */
public static void main(String[] args) {

}