

Name: _____

Date: _____

On my honor, I have neither given nor received help on this work. _____

iGEM Pre-Assessment

1. Define synthetic biology.

2. Define the following:

a. Genetically modified organism (GMO)

b. Transgenic organism

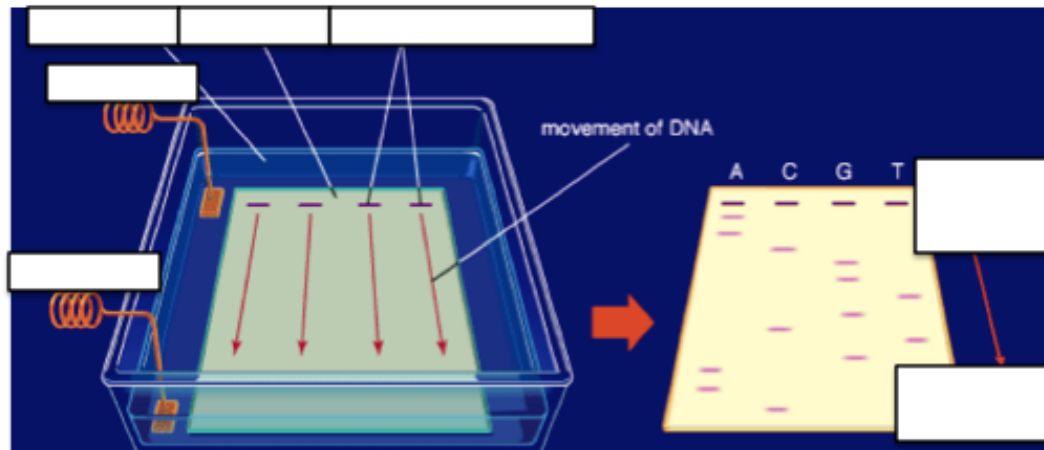
c. Recombinant DNA

3. Which combination of the following statements is correct regarding restriction endonucleases?

- I. Restriction endonucleases were originally isolated from eukaryotes.
- II. Restriction endonucleases cut DNA at palindromic target sequences.
- III. Restriction endonucleases cut with blunt and sticky ends.
- IV. Restriction endonucleases include EcoRI, XbaI, SmaI, and PstI.

- a. I, II only
- b. II only
- c. II, III only
- d. II, III, IV only

4. Using the word bank below, label the following image:



Word Bank: Positive electrode, Agarose gel, Longer DNA bands, Negative electrode, Shorter DNA bands, TAE Solution, Wells containing DNA samples

The above image depicts _____.

5. Match each of the following definitions with the correct term from the word bank below.

Word Bank: The Sanger method, Transformation, Ligation, Luria Broth

a. Through heat shock or electroporation, bacterial cells take up plasmid DNA.

b. A common, nutritionally rich bacteria media.

c. Determines the exact nucleic acid sequence of a DNA strand through analysis of fluorescent peaks.

d. A reaction used to combine pieces of DNA with complementary sticky ends.

6. Polymerase chain reaction (PCR) is a process used to amplify DNA.

a. What is included in the PCR reaction?

b. What machine is used to conduct PCR? _____

7. List three bioethical issues. Choose one of the three issues and explain your position.

1. _____
2. _____
3. _____

Opinion regarding Issue #___:

8. Why are you interested in iGEM, and what do you hope to learn from this experience?
