

Name: _____ Date: _____

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

Synthetic Biology Crash Course: Pre & Post-Assessment

1. Define synthetic biology.

2. Define the following:

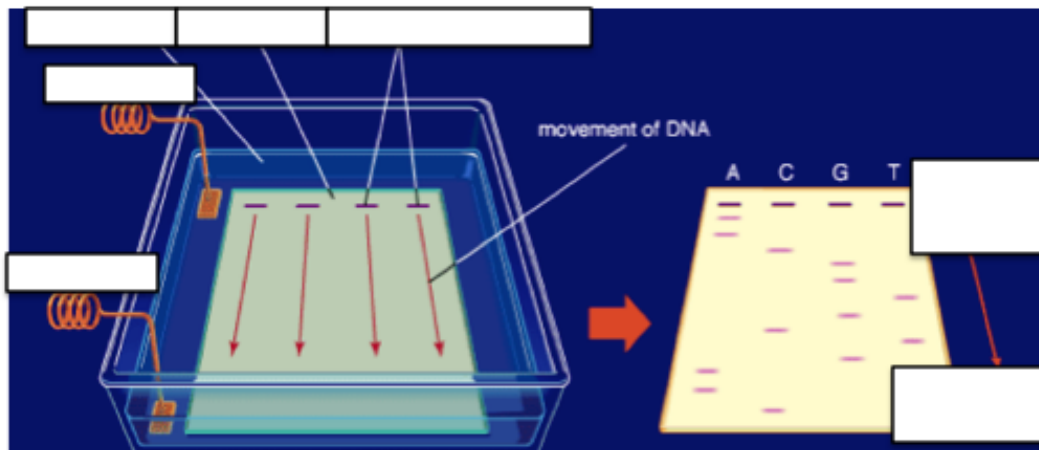
a. Genetic Engineering

b. Plasmid

c. Recombinant DNA

3. Which combination of the following statements is correct regarding restriction enzymes?
- I. Restriction enzymes were originally isolated from eukaryotes.
 - II. Restriction enzymes cut DNA at palindromic target sequences.
 - III. Restriction enzymes cut with blunt and sticky ends.
 - IV. Restriction enzymes 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: Transformation, Ligation, Luria Broth

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

b. A common, nutritionally rich bacteria media.

c. 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 are three components in a PCR?

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. _____