Name: _____

bit.ly/biotechnology-notes

Biotechnology

Bozeman Science - *Molecular Biology*

1. What can Taq polymerase do that DNA polymerase in humans can't do?

2. What does he compare a restriction enzyme to?

3. How can DNA be "pasted" after it has been cut?

4. What is recombinant DNA?

5. What does gel electrophoresis do?

6. What process can be used to duplicate DNA?

7. What is a genetic marker?

8. What do bacteria do to defend themselves against viruses?

9. What organism does the restriction enzyme EcoR1 come from?

10. Draw a simple diagram/illustration (found in the video) to show how EcoR1 cuts DNA.

11. What is a sticky end?

12. Where does the HindIII enzyme cut?

13. How do recombinant DNA strands (such as the first recombinant DNA of a frog and bacteria) get put together?

14. Why do larger fragments take longer to be pulled through the gel?

15. What pulls the DNA through the gel?

16. Why must DNA be dyed before it can be examined in electrophoresis?

17. In PCR, what are the following used for?

    a. Taq polymerase -

    b. nucleotides -

    c. primers -

18. Why must the PCR machine heat and cool the sample repeatedly?

19. What was the goal of the Human Genome Project?

DNA Fingerprinting

20. What is DNA fingerprinting?

21. How can more DNA be made if your sample is not adequate?

PCR

22. What are the essential components required for Polymerase Chain Reaction (PCR)?

23. Describe the three steps of PCR

- Denaturation

- Annealing

- Elongation

Restriction Enzymes

24. What is a sticky end? What is a blunt end?

25. What are sticky ends important?

Gel Electrophoresis

26. What is agarose gel?

27. What charge does DNA have? Why is this important to the process?

28. What is the significance of using a buffer?

29. Summarize the steps of gel electrophoresis.

30. What are a few applications of gel electrophoresis?