Biology 1200 – DNA lab report

Name _____

Part I: Data analysis and questions. (20 marks)

1. Draw or use a picture of your gel and label all the parts. If your gel did not turn out use another gel of a person in your group. (2)

2. Draw a graph showing the relationship between DNA base-pair length and distance travelled in the gel. (2)

3. Write a statement of results by analyzing the gel and your graph. (2)

4. What is the purpose of the control sample? (1)

5. Explain the difference between the taster and non-taster alleles in terms of single nucleotide polymorphisms, or SNPs. (2)

6. How do the methods of DNA typing used in this experiment differ from those used in forensic crime labs. (3) Focus on

    a. type(s) of polymorphism used
    b. method for separating alleles
    c. methods for ensuring the samples are not mixed up.

7. Explain PCR amplification and why it is necessary to type DNA samples. (2)

8. What are the experimental limitations and sources of error in the class experiment? (2)

9. Why does the *Hae*III restriction enzyme only digest the taster allele? (2)

10. What is a primer dimer? (2)

Part II (20 marks)

Choose an application of the technology used in the lab (DNA isolation, PCR, gel electrophoresis, and come up with a scientific question related to the application. For example: You may ask a question like "what is the advantage of using VTR's in DNA fingerprinting"?

Write 2 to 2 ½ pages double-spaced using sources from literature including the lab handout, your textbook, at least one peer-reviewed article, and reliable internet site – preferably an educational institution.