Name:

Date:

School:

Facilitator:

4.06 Electrophoresis Lab (35 points)

1. List four ways DNA can differ between people. (2 points)
2. Describe the process of PCR. (3 points)
3. Explain why, when PCR is used to amplify the same region of DNA from two different people, the size of the DNA fragment(s) generated may be different. (3 points)
4. After one round of PCR, there are two copies of the targeted DNA sequence. After two rounds, there are four copies. How many copies of the targeted DNA sequence should be present after six rounds of PCR? Show how you arrived at your answer. (3 points)
5. How is PCR useful in forensic science? (3 points)
6. Describe the process of gel electrophoresis. (3 points)
7. What characteristic of the DNA molecule allows us to separate DNA molecules by size? (2 points)
8. Use the evidence from the virtual lab to create a graphic of the DNA fingerprints. You may draw and insert a picture or use the table below as a template. (6 points)

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|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | Suspect 1 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | Victim |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | Evidence |

1. Based on the evidence, is either suspect tied to Devin’s assault? Explain your answer. (3 points)
2. Compare the pattern of the evidence DNA with the victim DNA. Is the evidence DNA contaminated with the victim DNA? (1 point)
3. If the evidence was contaminated with the victim’s DNA, how would the banding pattern differ? (3 points)
4. Where is there possibility for error in the gel electrophoresis / DNA fingerprinting process? (3 points)