Chapter 4: Fingerprints – Reading Guide

Name: ________________________________________________________

Vocabulary – Before reading this chapter, use the glossary to define the following words:

<table>
<thead>
<tr>
<th>AFIS (IAFIS)</th>
<th>Alternate light source</th>
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<tr>
<td>Biometrics</td>
<td>Elimination fingerprints</td>
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<tr>
<td>Friction ridge skin</td>
<td>Latent print</td>
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<tr>
<td>Minutiae</td>
<td>Plastic (impression) print</td>
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<tr>
<td>Positive identification</td>
<td>Visible (patent) print</td>
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Answer the following questions based on your reading in this chapter:

1. How did the fingerprint evidence in the case study help to solidify the case against the defendant, and eventually convict him?

2. How many different methods are available to make fingerprints visible?

3. What is named after Marcello Malpighi?

4. Who did Dr. Faulds send his research to, before it was, in turn, forwarded to Sir Francis Galton?

5. What was Galton’s contribution to the field of fingerprinting?

6. Galton’s calculation showed that there are how many possible fingerprints?

7. Using the fingerprint pictures in the reading, draw a sample of what each of these artifacts looks like in a fingerprint:
<table>
<thead>
<tr>
<th>Island</th>
<th>Ridge Ending</th>
<th>Bifurcation</th>
<th>Short Ridge</th>
</tr>
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<tbody>
<tr>
<td>Delta</td>
<td>Enclosure</td>
<td>Ridge Crossing</td>
<td></td>
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8. What is used to determine the individuality of a fingerprint?

9. What are the three fundamental principles that guide how fingerprints can be used to identify an individual?
   a.
   b.
   c.

10. What are the skin surfaces that create fingerprints designed by nature to do?

11. How do the ridges on your fingers transfer an impression to a surface?

12. Why does attempting to remove your fingerprints only serve to make them easier to identify?

13. List the three classes of fingerprints and the percent of the population that has each.

14. How can a person tell the difference between a radial loop and an ulnar loop?

15. If the loop opens toward the little finger, it is called a(n) ________________; if it opens toward the thumb, it is a(n) ________________.

16. Whorls are divided into four distinct groups, shown below. Label each one with the correct name:
17. What characteristics do all whorls have?

18. Describe the characteristics of an Arch.

19. Describe and label the two types of arches shown here:
   a. Plain:
   b. Tented:

20. What does AFIS Stand for, and what does this technology do?

21. What are the two advantages of AFIS?

22. Why did AFIS get changed to IAFIS?

23. “Super Glue” is approximately 98 to 99 percent ____________________________, which is the chemical that interacts with ____________________________.

24. Describe how each of the following fingerprinting methods work:
   a. Super glue fuming:
   b. Dusting:
   c. Iodine fuming:
   d. Ninhydrin solution:
   e. Silver Nitrate: