Spring 2019 Honors Forensic Science Final Exam Study Guide

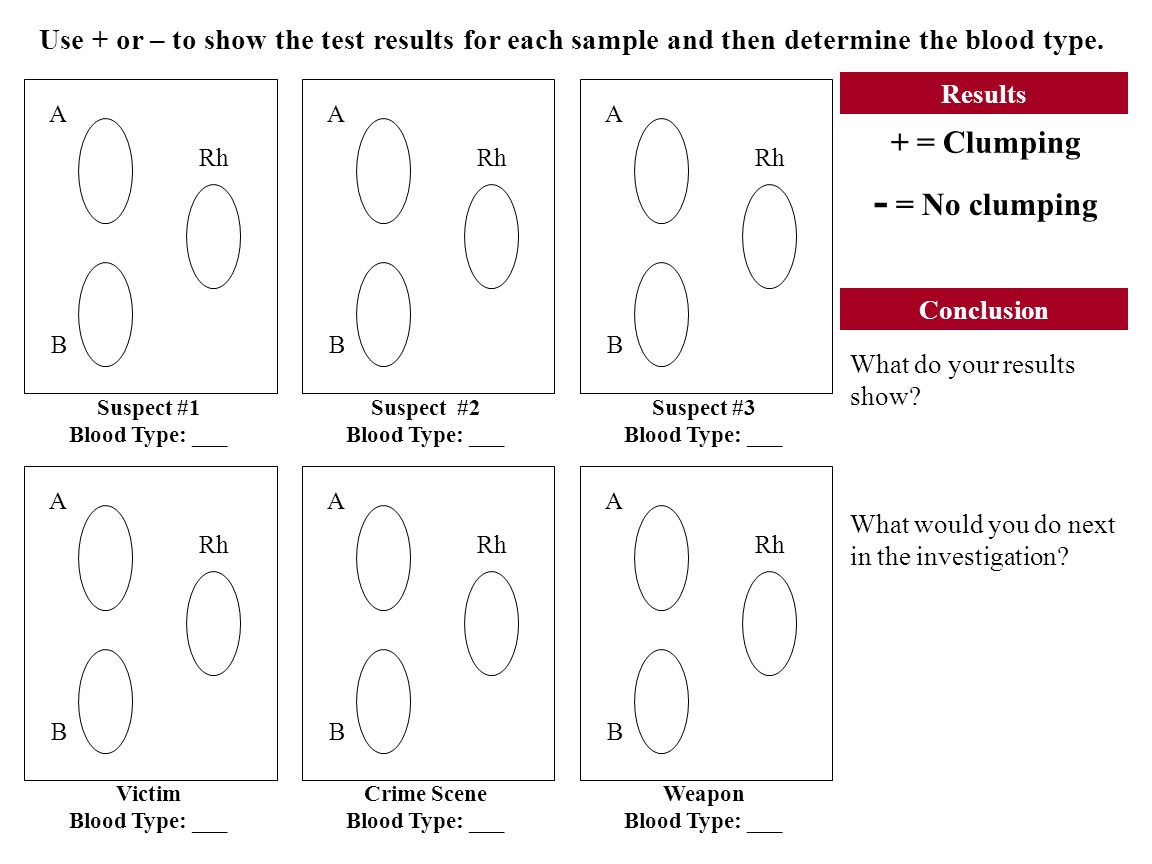
1. Define forensic science.
2. What is Locard’s exchange principle and give an example.
3. What was the ruling in the court case of Frey v. United States in terms of evidence allowed in court?
4. What was the ruling in Daubert v.Merrill Dow in terms of evidence allowed in court?
5. What are the Federal rules of evidence?
6. Distinguish between class and individual evidence and give 2 examples of each.
7. What is trace evidence?
8. Who is the first person to arrive at a crime scene and what is their role?
9. What is a standard reference sample?
10. Define the following types of fingerprints and give an example of each.
    1. Plastic fingerprint
    2. Patent fingerprint
    3. Latent fingerprint
11. Describe 4 methods used to develop latent prints at a crime scene.
12. What are the 3 kinds of fingerprints a person may have and how are they distinguished from each other?
13. What are fingerprint minutiae?
14. How do you complete a ridge count on a fingerprint?
15. What type of fingerprints are these and circle and label 7 different minutiae on each print?

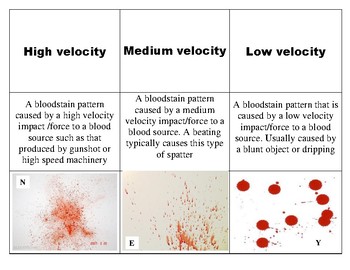
1. Describe the 3 stages of hair growth and how long each stage lasts.
2. What are the 3 parts of a hair’s structure? Where are the pigment granules in a hair found?
3. Describe the 3 types of cuticles that exist in a hair. What type do humans have?
4. What is the medullary index and how is it used to distinguish human from animal hair?
5. What percentage of fiber evidence is lost from a crime scene within 24 hours?
6. What are the 2 main types of fibers? Give 3 examples of each
7. Describe the ways a forensic scientist determines what a fiber is made of.
8. When questioning the author or authenticity of a document, what is an exemplar?
9. What is forgery? What is fraudulence?
10. How can a criminal make a forged document look older than it really is?
11. What are 12 handwriting characteristics to look for when judging if someone forged a document?
12. Describe the differences between regular, soda-lime glass, tempered glass, laminated glass, and bullet proof glass.
13. Explain how glass fractures. Use the terms concentric and radial fractures, include which occur first and second and on which side of the glass each occur.



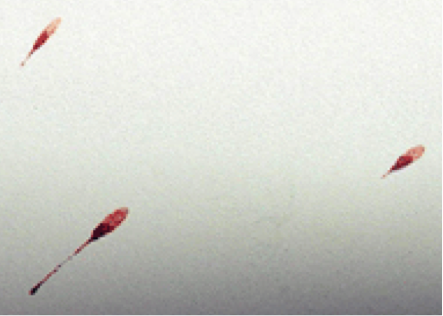
1. Which bullet hole occurred first? Explain how you determined your answer.
2. What is refractive index and how is it used to determine the type of glass?
3. What does it mean when a soil sample changes color?
4. Describe 4 methods forensic scientists use in test soil.
   1. Visual
   2. Density
   3. Microscopic
   4. pH
5. How many bones does an adult human have? A baby?
6. Describe the differences between male and female skulls.
7. How can a femur be used to determine the approximate age of a victim?
8. Describe each of the stages of decomposition.
9. How would each factor below affect decomposition?
   1. Hot weather
   2. Cold weather
   3. Found in a freezer
   4. Found in a lake
   5. Wrapped in a blanket
   6. Found without clothes
10. Describe livor mortis, including its timeline.
11. Describe rigor mortis, including its timeline.
12. Describe algor mortis and how it is used to determine the time of death of a victim.
13. Explain how each factor below would affect algor mortis.
    1. Hot weather
    2. Cold weather
    3. Being very thin
    4. Exercising right before death
    5. Found without clothes on
    6. Being wrapped in blankets
14. A woman was found at 6am on Wednesday, May 1st with a liver temperature of 29.3°C. How long ago did she die?
15. An elderly man was found decesased in his apartment just after noon today with a liver temperature of 22.2°C. How long ago did he die?
16. What is manner, cause, and mechanism of death? Give examples of each.
17. Describe these types of drugs: narcotics, stimulants, depressants, hallucinogens, club drugs, and anabolic steroids. Give some basic effects for each one and at least one example of each.
18. What is meant by physical dependence? What is meant by psychological dependence?
19. What is the Controlled Substances Act. Describe each schedule of drug within the act.
20. How does alcohol spread throughout the body once consumed? What affects how quickly a person feels alcohol’s effects?
21. What is the legal limit for alcohol?
22. Describe 2 field sobriety tests and why are they used?
23. What are the different blood types people have?



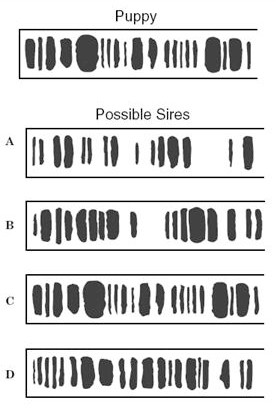
1. Which of these images came from low velocity spatter, high velocity spatter, and medium velocity spatter? How can you tell?



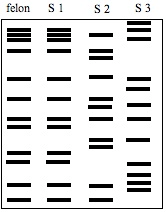
1. What is passive spatter?
2. What direction was the blood travelling in the picture below?



1. How do you determine the point of origin and the height that the blood spatter originated from?
2. What is a DNA fingerprint?
3. What is CODIS?
4. What is the difference between RFLP and STR?
5. What is a restriction enzyme and what does it do?
6. The DNA fingerprints were made from blood samples taken from a puppy and four possible sires in an effort to determine the puppy’s pedigree. According to this information, which sire is probably the father of this puppy?YOUR ANSWER.



1. Suzy was assaulted and is a victim of rape. The police collect a sample of sperm that was left at the crime scene and now have 3 possible suspects. Which of the suspects committed the crime?



1. What is ballistics?
2. What are lands and grooves on a gun?
3. What is rifling and why is it important for forensics?
4. What does caliber of a bullet mean?
5. What is the proper method to swab a suspect for gunshot residue, or GSR?
6. What is the difference between skid marks, tire scrub, and yaw marks made by tires on a surface?
7. How are tool marks cast?
8. Why don’t forensic scientists use the orginal tool mark, why do they take casts?