

CH 114 Chapter Reading Guide and Study Guide for Exam #2 10th Edition

Chapter 14

- 1) What role does the criminalist take in arson investigations?
- 2) What is the goal of searching a fire scene? Is a warrant required? Briefly explain.
- 3) What are the telltale signs of an accelerant-initiated fire?
- 4) How is physical evidence collected at the scene of a suspected arson?
- 5) What laboratory procedures are used to detect and identify hydrocarbon residues?
- 6) Describe in general, the chemistry of fire. What types of substances are required? What gets produced?
- 7) What is energy? List several different types of energy. What role does energy play in a chemical reaction?
- 8) What is the difference between an exothermic reaction and an endothermic reaction? Which type of reaction does this chapter focus on?
- 9) What is an ignition temperature? Give an example.
- 10) Why is fire described as a chain reaction?
- 11) In order for a reaction to occur what things must happen to the molecules?
- 12) What factors affect the rate of a combustion reaction?
- 13) How do non-gaseous fuels burn?
- 14) What are the three basic ingredients of a flaming fire and what other factor must be considered?
- 15) Can fuels burn without a flame? Briefly explain.
- 16) What is spontaneous combustion?
- 17) Give an example and briefly explain an oxidation reaction not involving oxygen.

Chapter 15

- 1) How is physical evidence collected at the scene of an explosion?

- 2) What laboratory procedures are used to detect and identify explosive residues?
- 3) How are explosives classified?
- 4) What happens to explosive evidence once in the lab? What confirmatory tests are run?
- 5) What are taggants?

Chapter 10

- 1) What A-B-O antigens and antibodies are found in each type of blood?
- 2) How is whole blood typed?
- 3) What forensic tests are used to characterize a stain as blood?
- 4) How are antigen-antibody interactions applied to species identification and drug identification?
- 5) What are the differences between monoclonal and polyclonal antibodies?
- 6) How are chromosomes and genes different?
- 7) How is a Punnett square used to determine the genotypes and phenotypes of offspring?

Chapter 11

- 1) What parts make up a nucleotide and how they are linked together to form DNA?
- 2) How does base pairing contribute to the structure of DNA?
- 3) How do DNA strands coding for the production of proteins differ with strands containing repeating base sequences?
- 4) What does PCR stand for and how does it work?
- 5) What new technique is being used to type DNA? How does it work?
- 6) What is the difference between nuclear and mitochondrial DNA?
- 7) How are computerized DNA databases used in criminal investigations?
- 8) What procedures must be followed for the proper preservation of bloodstained evidence for DNA analysis?