

Name: \_\_\_\_\_

Score: \_\_\_\_ / \_\_\_\_

## Quiz 11 on Forensics

### Part 1

An American woman is \_\_\_\_\_ times more likely to be raped than to die in a car crash

- A. 10
- B. the same
- C. 5
- D. 2

A plastic bag was found in the shallow grave of the victim with a bloody jacket and some trace hairs were recovered. What techniques would be best used to match the hairs to the suspect's cat, snowball?

- A. all of these techniques together provide the best case
- B. scanning electron microscopy of the trace evidence showed that they were those of a cat.
- C. PCR of the blood from the jacket to tie the DNA of the suspect to the jacket
- D. PCR providing a perfect match with cat STRs

Arson is defined as "The willful and malicious burning of property" Forensic trace analysis for arson investigations includes:

- A. placing liquids in glass jars or paint cans
- B. sealing openings of large containers and sealing cans and jars with evidence tape.
- C. all of these approaches may be important depending on the case.
- D. collecting solid debris placed in paint cans
- E. prevention of evaporation of the samples

What are the odds of two people's DNA matching one another given the nationally used 13 CODIS core of STR loci used by state and federal forensics experts?

- A. over 1 in a billion
- B. less than 1 in 90
- C. 1 in 700,000
- D. 1 in 7,000
- E. 1 in 3 million

During a trace analysis of hair evidence which of the following would be considered an important question for forensic scientists?

- A. all of these questions are pertinent to trace analysis of hair samples
- B. Is it a hair? What is its color? What is the architecture under SEM analysis?
- C. Is it human? What racial group?
- D. Is the hair consistent with any of the known samples?
- E. What area of the body is it from?

The numbers of repeat offenses is one reason people support felon DNA databases. Collecting samples from offenders convicted of all felonies could help insure their DNA profiles are in the Database before they commit their first violent act. There is a 67% recidivism rate among convicted sex offenders and the average number of sexual assaults per offender is 8-13. As it turns out felons are often opportunistic and commit more than one type of crime. 52% of the offenders linked to sexual assaults and homicides by DNA Database matches had a prior conviction of what type of crime?

- A. Assault and Battery
- B. Sex offenses against children
- C. Kidnapping
- D. white collar crimes
- E. Burglary

DNA analysis is now a common and widely accepted forensic tool used to analyze evidentiary DNA

- True
- False

X% of rape victims are females under the age of 18

- A. 28
- B. 61
- C. 37
- D. 12

Should the public create a DNA database of convicted felons? The CT CODIS Database collects two types of samples; (1) Convicted Offender Samples that include all Felony Convictions (since 03/01/04) and, (2) Forensic Unknowns that include any DNA profile from an evidentiary sample that does not match the victim or an elimination known. There are currently over 10,793 offenders in CT Database and over 1500 offender samples are added per month. Currently there are how many felons on the CT database?

- A. None of these answers is correct
- B. 1 out of 1,000 males in CT
- C. 1 out of 10,000 males in CT
- D. 1 out of 50 males in CT

Given DNA-based forensic techniques, standard fingerprint analysis is now obsolete.

- A. Fingerprint analysis is only conducted by local police
- B. True, PCR analysis is so sensitive and accurate that standard fingerprints are no longer collected at crime scenes
- C. Only in Texas is fingerprint analysis now considered obsolete
- D. In all fifty states, fingerprint analysis is now considered unreliable evidence and not admissible in court.
- E. False, standard fingerprint and other latent print analysis are routine as part of crime scene investigations.

The use of forensic science involves using science to evaluate physical evidence. DNA based forensics has become increasingly important. Who recognizes, identifies, individualizes and evaluates physical evidence using the methods of natural sciences in matters of legal significance?

- A. Detectives
- B. Criminologists
- C. Criminalists
- D. Criminals
- E. Local Police

The scope of Forensic Trace Analysis

- A. all of these can play a role
- B. can give investigative clues
- C. none of these play a role in forensic trace analysis
- D. occasionally can be linked to a specific source
- E. is usually limited to class characteristics

In the national debate about the use of forensic DNA analysis and the building of DNA databases (such as an all felon database vs. an all arrestee database of a general public database) there are two competing views. One view holds that DNA testing and the building of databases is a matter of public safety: DNA solves crimes; only criminals should fear DNA testing or databases. The opposing view holds that

- A. Misused DNA evidence has obviously exonerated guilty people.
- B. There are privacy concerns, maintaining that DNA information is different where there is significant potential for abuse.
- C. That the PCR approach to DNA testing is not accurate or reliable
- D. DNA databases will be far too costly to maintain or use.

Why should we expand forensic DNA databases?

- A. all of these reasons
- B. Protect public safety
- C. More hits. Approximately half all violent criminals have non-violent prior convictions. If only collect violent offenders, likelihood of hit (rape/homicide case) is reduced by ~ 85%.
- D. Exclude more people who could not be the source of the DNA profile

Approximately 28% of rape victims are raped by their husbands, and \_\_\_\_ by and acquaintance

- A. 55
- B. 35
- C. 5
- D. 25

Considering the National debate on DNA forensic databases which of the following is NOT an issue?

- A. what happens to the sample after profiling?
- B. Constitutionality of taking DNA samples from arrestees and suspects.
- C. Practical/financial considerations of expanding DNA databanks
- D. post-conviction DNA testing >150 exonerated since August 2004
- E. accuracy of the DNA testing protocols

Should we have an all felon DNA database? Should we have an all arrestee DNA database (regardless of conviction)?

Should we have an all population database? These are difficult questions for various reasons. DNA databases are controversial because

- A. they have been too expensive or computationally too difficult to manage on a large scale
- B. they use crime genes to evaluate unsuspected criminal from the public
- C. they have not proven useful to solving crimes
- D. of the conflict between public safety and civil liberties

How does forensic testing help in a criminal investigation?

- A. by linking a suspect to a crime scene
- B. by linking a suspect to a victim
- C. by any or all of these answers
- D. by linking a victim to a crime scene

Why would analyzing the DNA of burglars reduce the violent crime rate, theoretically?

- A. no answer listed is correct
- B. DNA testing would prove that criminals are genetically predisposed to crime
- C. It wouldn't
- D. 50% of non-violent criminals go on to commit violent crimes, analysis would make proving guilt and making arrests easier

(STR) technology is used to evaluate specific regions (loci) within nuclear DNA. Variability in STR regions can be used to distinguish one DNA profile from another. The Federal Bureau of Investigation (FBI) uses a standard set of 13 specific STR regions for CODIS. CODIS is a software program that operates local, state, and national databases of DNA profiles from convicted offenders, unsolved crime scene evidence, and missing persons. The odds that two individuals will have the same 13-loci DNA profile is extremely unlikely. STR stands for:

- A. Standard temperature reactions
- B. Statewide Tracking Reliabilities
- C. Short Tandem Repeats
- D. Starwars Tracking Reactions