

UNIT 5 QUIZ – Study Guide

1. Name the components that make up DNA?

- a. sugar molecule
- b. nitrogenous base

- c. peroxide group
- d. phosphate group

2. Where does the DNA found in blood come from?

White blood cells

3. DNA codes for protein which determine traits.

4. What are the processes used for DNA fingerprinting

STR, RFLP, VNTR

5. Mitochondrial DNA is found in the Cytoplasm of the cell and is Circular in shape.

6. How does mitochondrial DNA analysis compare to nuclear DNA analysis?

Analysis of mtDNA is more consuming, rigorous, and costly

7. FBI's CODIS Database is primarily used for...

Linking serial crimes and unsolved cases with repeat offenders

8. The restriction enzyme EcoRI will cut between the G and the A in the sequence GAATTC. Which of the following sequences shows a proper cut?

- a. G | AATTC
- C | TTAAG
- b. G | AATT | C
- C | TTAA | G

- c. G | AATTC
- CTTAAG |
- d. G | AATT C
- C TTAA | G

9. What is necessary to include in a mixture for carrying out PCR?

DNA, free nucleotides, polymerase, primers

10. When using electrophoresis with DNA, what step is crucial at the end in order to visualize DNA fragments?

Dye the gel

11. STRs are loci on the chromosome that contains short sequences of how many bases that repeat themselves in the DNA molecule?

3-5

12. When using STR to type DNA; as you increase the number of STRs being used from additional genes you will _____ the odds of the DNA belonging to more than one person.

Decrease

13. The preferred number of loci for STR typing is:

13

14. What factors affect the way a molecule moves through electrophoresis?

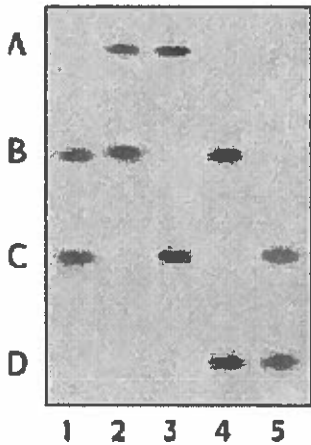
molecular shape

15. In your electrophoresis lab, why didn't the dyes all move in the same direction?

16. What is the agarose gel used for in electrophoresis?

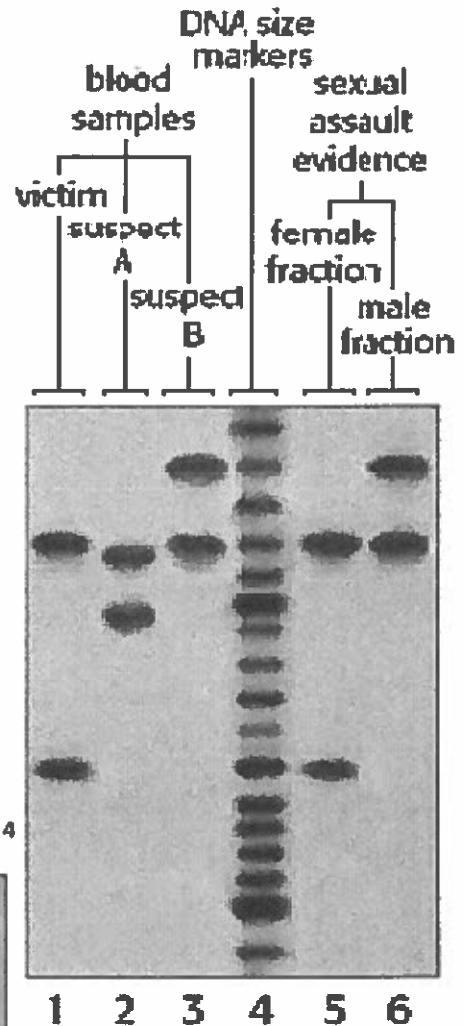
The below DNA profile includes DNA from a father and his three children.

17. Which lane represents the father?



18. Which two alleles must the mother have had?

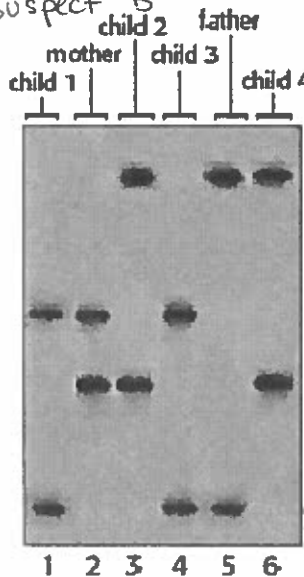
A + D



19. The key portion of the autoradiograph from a single locus probe analysis of various DNA samples in a rape investigation is shown in the figure to the right. If you are the DNA analyst, you should conclude that:

Suspect A can be excluded as a suspect, but suspect B cannot, need to run further tests.

20. Results from a single locus probe DNA fingerprint analysis for a man and woman and their four children are shown in the illustration on the right. Which child, if any, can be excluded as being the biological offspring of the father?



All are his children

21. Which of the following is NOT a function of CODIS?

Census Review

22. The DuPage Crime Lab would upload DNA profiles into which of the following databases?

NDIS

23. What information can be searched on the National level with CODIS? (mark all that apply)

The DNA profile, Agency Identifier, The specimen Identification Number,

24. What is the average probability that all thirteen loci match?

The DNA Laboratory personal associated with a DNA profile analysis

1 out of billions