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| 1. Because DNA is composed of alternating sugar and phosphate molecules, DNA is known as a double helix.   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | |  |  | |  |  | |  |  | |

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| 2. Most females have one X and one Y (XY) sex chromosome.   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | |  |  | |  |  | |  |  | |

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| 3. To calculate the percentage of people who have a particular allele, population studies are conducted to collect data.   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | |  |  | |  |  | |  |  | |

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| 4. Humans share common ancestors. Therefore, the DNA STR profile of all humans is the same.   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | |  |  | |  |  | |  |  | |

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| 5. mtDNA is used to trace ancestry through the female line.   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | |  |  | |  |  | |  |  | |

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| 6. Except for identical twins, no two people on earth have the same:   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | physical characteristics. | b. | DNA. | |  | c. | blood group. | d. | skeletal type. |  |  |  | | --- | --- | |  |  | |  |  | |  |  | |

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| 7. People are always shedding cells. Therefore DNA can be recovered from:   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | skin cells. | b. | saliva. | |  | c. | semen. | d. | a and b only. | |  | e. | ​a and c only. | f. | a, b, and c. |  |  |  | | --- | --- | |  |  | |  |  | |  |  | |

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| 8. The term that describes a picture of homologous pairs of human chromosomes is:   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | karyotype. | b. | genetics. | |  | c. | archetype. | d. | a and b only. | |  | e. | ​All of these choices. | f. | None of these choices. |  |  |  | | --- | --- | |  |  | |  |  | |  |  | |

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| 9. The 95 percent of noncoding DNA is involved in:   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | blueprint production. | b. | genetic material. | |  | c. | cell regulation. | d. | DNA fingerprinting. |  |  |  | | --- | --- | |  |  | |  |  | |  |  | |

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| 10. If one person has two alleles that are the same for a specific STR, then that person is considered to have:   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | rare occurring alleles. | b. | heterozygous genotypes. | |  | c. | frequently occurring alleles. | d. | homozygous genotypes. |  |  |  | | --- | --- | |  |  | |  |  | |  |  | |

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| 11. James Watson and Francis Crick received the 1953 Nobel Prize for their work on describing the structure of DNA as:   |  |  |  | | --- | --- | --- | |  | a. | a double helix that resembles a twisted ladder. | |  | b. | a helix that resembles a twisted ladder. | |  | c. | a triple helix that resembles a twisted ladder. | |  | d. | None of these choices. |  |  |  | | --- | --- | |  |  | |  |  | |  |  | |

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| 12. Which chromosomes have the same shape and contain the same genes?   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | genes | b. | autosomes | |  | c. | (XX) | d. | introns |  |  |  | | --- | --- | |  |  | |  |  | |  |  | |

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| 13. DNA in chromosomes is called   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | DNA. | b. | DNA chromosomes. | |  | c. | nuclear DNA. | d. | structural DNA. |  |  |  | | --- | --- | |  |  | |  |  | |  |  | |

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| 14. Alternate forms of a gene are called:   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | chromosomes. | b. | DNA. | |  | c. | alleles. | d. | RNA. |  |  |  | | --- | --- | |  |  | |  |  | |  |  | |

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| 15. (GAAT) (GAAT) (GAAT) (GAAT) is an example of:   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | restriction fragments. | b. | DNA fingerprinting. | |  | c. | PCR. | d. | STR. |  |  |  | | --- | --- | |  |  | |  |  | |  |  | |

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| 16. The total amount of DNA in a cell, which is contained in the cell's nucleus (nuclear DNA) and mitochondria (mtDNA), is called the human:   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | genome. | b. | gene. | |  | c. | allele. | d. | RNA. |  |  |  | | --- | --- | |  |  | |  |  | |  |  | |

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| 17. Approximately how many base pairs are in the human body?   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | 6 million base pairs. | b. | 6 billion base pairs. | |  | c. | 6 thousand base pairs | d. | 6 trillion base pairs. |  |  |  | | --- | --- | |  |  | |  |  | |  |  | |

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| 18. In 1984, Dr. Alec Jeffreys at the University of Leicaster observed that DNA from different individuals contains different polymorphisms.  His laboratory developed a technique for isolating and analyzing these variable areas that is known as:   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | DNA quantifying, or DNA profiling. | b. | DNA fingerprinting, or DNA profiling. | |  | c. | DNA sorting, or DNA profiling. | d. | DNA investigating, or DNA profiling. |  |  |  | | --- | --- | |  |  | |  |  | |  |  | |

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| 19. Which method is used to identify different STR markers?   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | x-raying DNA samples | b. | extracting the mtDNA from the gene | |  | c. | adding fluorescent dyes to the PCR reaction | d. | calculating the allele frequency |  |  |  | | --- | --- | |  |  | |  |  | |  |  | |

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| 20. Ninety-five percent of DNA is non-coding. What term describes non-coding DNA that acts as genetic "on-an-off" switches?   |  |  |  |  |  | | --- | --- | --- | --- | --- | |  | a. | karotypes | b. | exons | |  | c. | introns | d. | base pairs |  |  |  | | --- | --- | |  |  | |  |  | |  |  | |

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| 21. What material is used to isolate and cut DNA? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.   |  |  | | --- | --- | |  | restriction enzymes | |  |  | |  |  | |  |  | |

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| 22. Name a method of separating molecules, such as DNA, based on their size. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.   |  |  | | --- | --- | | electrophoresis | | |  |  | | |  |  | | |  |  | | |

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| 23. The DNA of every organism on earth is made of the same four \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.   |  |  | | --- | --- | |  | nitrogeneous bases | |  |  | |  |  | |  |  | |

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| 24. Amplifying trace samples of DNA is called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.   |  |  | | --- | --- | | PCR  polymerase chain reaction | | |  |  | | |  |  | | |  |  | | |

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| 25. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are variable regions of DNA that repeat.   |  |  | | --- | --- | |  | STR  short tandem repeat | |  |  | |  |  | |  |  | |