Test 4

Bio 160 Genetics and Human Affairs

April 12, 2010

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| --- | --- | --- | --- | --- | --- | --- | --- |
| 1. | Cytogenetics is the study of chromosomes, their abnormalities and the syndromes they cause.     |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | |  |  | | --- | --- | | A. | True | | |  |  | | --- | --- | | B. | False | | |

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| 2. | A chromosome consists of     |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | |  |  | | --- | --- | | A. | mostly protein and RNA with a small amount of DNA. | | |  |  | | --- | --- | | C. | about equal proportions of DNA, RNA, and protein. | | | |  |  | | --- | --- | | B. | mostly DNA and proteins with a small amount of RNA. | | |  |  | | --- | --- | | D. | DNA only. | | |

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| 3. | \_\_\_\_\_\_\_\_contains more protein-encoding sequences than\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_     |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | |  |  | | --- | --- | | A. | Heterochromatin, euchromatin | | |  |  | | --- | --- | | C. | Pericentric inversions, aneuploids | | | |  |  | | --- | --- | | B. | Euchromatin, heterochromatin | | |  |  | | --- | --- | | D. | Aneuploids, pericentric inversions | | |

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| 4. | Heterochromatic regions at the ends of chromosomes are:     |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | |  |  | | --- | --- | | A. | Centromeres | | |  |  | | --- | --- | | D. | Satellites | | | |  |  | | --- | --- | | B. | Euchromatin | | |  |  | | --- | --- | | E. | Mostly codons | | | |  |  | | --- | --- | | C. | Telomeres | |  | |

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| 5. | Which type of cell could not be used to examine chromosomes?     |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | |  |  | | --- | --- | | A. | Red blood cell | | |  |  | | --- | --- | | C. | bone marrow cells | | | |  |  | | --- | --- | | B. | White blood cell | | |  |  | | --- | --- | | D. | Skin cell | | |

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| 6. | An extra set of chromosomes constitutes:     |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | |  |  | | --- | --- | | A. | Aneuploidy | | |  |  | | --- | --- | | C. | Diploidy | | | |  |  | | --- | --- | | B. | Polyploidy | | |  |  | | --- | --- | | D. | Haploidy | | |

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| 7. | An individual with the chromosomal description 45, X would be a:     |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | |  |  | | --- | --- | | A. | normal female. | | |  |  | | --- | --- | | C. | male with Klinefelter syndrome. | | | |  |  | | --- | --- | | B. | female with Turner syndrome. | | |  |  | | --- | --- | | D. | cannot be determined. | | |

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| 8. | Prenatal diagnostic techniques that obtain fetal chromosomes include all but:     |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | |  |  | | --- | --- | | A. | amniocentesis. | | |  |  | | --- | --- | | C. | chorionic villus sampling. | | | |  |  | | --- | --- | | B. | fetal cell sorting. | | |  |  | | --- | --- | | D. | fluorescence in situ hybridization. | | |

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| 9. | Which of the following procedures uses fetal cells that are obtained from the mother's bloodstream?     |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | |  |  | | --- | --- | | A. | amniocentesis | | |  |  | | --- | --- | | C. | chorionic villus sampling | | | |  |  | | --- | --- | | B. | fetal cell sorting | | |  |  | | --- | --- | | D. | fluorescence in situ hybridization | | |

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| 10. | The most common autosomal aneuploid is:     |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | |  |  | | --- | --- | | A. | trisomy 13 | | |  |  | | --- | --- | | C. | trisomy 18 | | | |  |  | | --- | --- | | B. | trisomy 15 | | |  |  | | --- | --- | | D. | trisomy 21 | | |

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| 11. | In nondisjunction, which parent leads to the sex chromosome aneuploid XYY?     |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | |  |  | | --- | --- | | A. | mother | | |  |  | | --- | --- | | C. | either parent | | | |  |  | | --- | --- | | B. | father | | |  |  | | --- | --- | | D. | both parents | | |

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| 12. | A triploid human karyotype has how many chromosomes?     |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | |  |  | | --- | --- | | A. | 23 | | |  |  | | --- | --- | | C. | 69 | | | |  |  | | --- | --- | | B. | 46 | | |  |  | | --- | --- | | D. | 92 | | |

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| 13. | A chromosome is \_\_\_\_\_\_ if the centromere divides it into two arms of approximately equal length.     |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | |  |  | | --- | --- | | A. | telocentric | | |  |  | | --- | --- | | C. | metacentric | | | |  |  | | --- | --- | | B. | submetacentric | | |  |  | | --- | --- | | D. | acrocentric | | |

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| 14. | \_\_\_\_\_cells have extra or missing chromosomes, while\_\_\_\_\_cells contain a normal number of chromosomes.     |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | |  |  | | --- | --- | | A. | Aneuploid, euploid | | |  |  | | --- | --- | | C. | Autosome, polyploid | | | |  |  | | --- | --- | | B. | Polyploid, autosome | | |  |  | | --- | --- | | D. | Euploid, aneuploid | | |

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| 15. | The alleles in a population comprise its:     |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | |  |  | | --- | --- | | A. | gene allocation | | |  |  | | --- | --- | | C. | gene pool | | | |  |  | | --- | --- | | B. | gene flow | | |  |  | | --- | --- | | D. | genotype | | |

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| 16. | \_\_\_\_\_\_is the source of new alleles in a population     |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | |  |  | | --- | --- | | A. | Genetic drift | | |  |  | | --- | --- | | C. | Selection | | | |  |  | | --- | --- | | B. | Mutation | | |  |  | | --- | --- | | D. | Nonrandom mating | | |

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| 17. | Hardy-Weinberg equilibrium explains:     |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | |  |  | | --- | --- | | A. | the introduction of new aleles into a population. | | |  |  | | --- | --- | | C. | the reasons for migration. | | | |  |  | | --- | --- | | B. | the formation of a new species. | | |  |  | | --- | --- | | D. | constant allele frequencies in a population. | | |

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| 18. | Consider a gene in a population where the dominant alele G occurs in 56%  of the gametes.  What is the frequency of the recessive allele?     |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | |  |  | | --- | --- | | A. | 56% | | |  |  | | --- | --- | | C. | 0% | | | |  |  | | --- | --- | | B. | 44% | | |  |  | | --- | --- | | D. | cannot be determined. | | |

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| 19. | The chance of carrying the cystic fibrosis allele is 1/23 in the Caucasian population.  The risk for two unrelated Caucasian individuals, neither of whom have a family history of CF, of having an affected child is:     |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | |  |  | | --- | --- | | A. | 1/4 x 1/4 | | |  |  | | --- | --- | | C. | 1/23 x 1/23 | | | |  |  | | --- | --- | | B. | 1/23 x 1/23 x 1/4 | | |  |  | | --- | --- | | D. | 1/4 x 1/4 x 1/23 | | |

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| 20. | The Mennonite and Amish populations have many autosomal recessive illnesses that are extremely rare elsewhere.  This is not because:     |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | |  |  | | --- | --- | | A. | they descended from a few founding families. | | |  |  | | --- | --- | | C. | spontaneous mutations occur at a very high rate. | | | |  |  | | --- | --- | | B. | they marry among themselves. | | |  |  | | --- | --- | | D. | all of the above account for the prevalence of recessive disorder. | | |

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| 21. | Challenges to DNA profiling in mass disasters include:     |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | |  |  | | --- | --- | | A. | climate that hastens decay. | | |  |  | | --- | --- | | C. | poor DNA quality | | | |  |  | | --- | --- | | B. | lack of relatives. | | |  |  | | --- | --- | | D. | All of the above | | |

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| 22. | Amniocentesis cannot be used to determine which of the following:     |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | |  |  | | --- | --- | | A. | The sex of the fetus | | |  |  | | --- | --- | | D. | Missing or abnormal biochemicals in the fetus | | | |  |  | | --- | --- | | B. | Intelligence of a fetus | | |  |  | | --- | --- | | E. | Total number of chromosomes | | | |  |  | | --- | --- | | C. | The presence of chromosomal abnormalities in the fetus | |  | |

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| 23. | Fetal karyotypes can reveal:     |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | |  |  | | --- | --- | | A. | Single gene disorders | | |  |  | | --- | --- | | C. | Introns | | | |  |  | | --- | --- | | B. | Gender | | |  |  | | --- | --- | | D. | Point mutations | | |

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| 24. | Chorionic villus sampling differs from amniocentesis in that for CVS:     |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | |  |  | | --- | --- | | A. | Cells must first be cultured | | |  |  | | --- | --- | | C. | A karyotype is prepared directly from cells collected through the vagina | | | |  |  | | --- | --- | | B. | Biochemical tests can be performed on the sample | | |  |  | | --- | --- | | D. | Cells do not directly descend from the fertilized ovum | | |

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| 25. | Only nine types of aneuploids are known in newborns because:     |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | |  |  | | --- | --- | | A. | Only nine chromosomes undergo nondisjunction | | |  |  | | --- | --- | | C. | Most aneuploids do not cause detectable defects | | | |  |  | | --- | --- | | B. | Most types of aneuploids are lethal early in development | | |  |  | | --- | --- | | D. | Missing chromosomes cause most lethal aneuploids | | |

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| 26. | People with Klinefelter syndrome have which chromosome constitution?     |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | |  |  | | --- | --- | | A. | XXY | | |  |  | | --- | --- | | D. | XXX | | | |  |  | | --- | --- | | B. | XY | | |  |  | | --- | --- | | E. | XO | | | |  |  | | --- | --- | | C. | YO | |  | |

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| 27. | CVS reveals a fetus has the karyotype 47, XYY. What is the diagnosis?     |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | |  |  | | --- | --- | | A. | Normal male | | |  |  | | --- | --- | | D. | Jacobs syndrome | | | |  |  | | --- | --- | | B. | Klinefelter syndrome | | |  |  | | --- | --- | | E. | Down syndrome | | | |  |  | | --- | --- | | C. | Edward syndrome | |  | |

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| 28. | Males born with an extra Y chromosome:     |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | |  |  | | --- | --- | | A. | Die shortly after birth | | |  |  | | --- | --- | | D. | Are phenotypically female | | | |  |  | | --- | --- | | B. | May be predisposed to violent and anti-social behavior | | |  |  | | --- | --- | | E. | Are genotypically female | | | |  |  | | --- | --- | | C. | May be tall but are otherwise normal | |  | |

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| 29. | Uniparental disomy results when a child inherits:     |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | |  |  | | --- | --- | | A. | Two recessive alleles, one from each parent | | |  |  | | --- | --- | | D. | More than two alleles from one parent | | | |  |  | | --- | --- | | B. | Two alleles from one parent | | |  |  | | --- | --- | | E. | A recessive allele | | | |  |  | | --- | --- | | C. | One recessive allele from one parent | |  | |

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| 30. | Polyploidy is common among plants, but is a common cause of spontaneous abortion in humans.     |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | |  |  | | --- | --- | | A. | True | | |  |  | | --- | --- | | B. | False | | |

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| 31. | Which of these can only result from non-disjunction in the male?     |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | |  |  | | --- | --- | | A. | YO male | | |  |  | | --- | --- | | D. | Triplo-X | | | |  |  | | --- | --- | | B. | Turner syndrome | | |  |  | | --- | --- | | E. | Jacobs syndrome | | | |  |  | | --- | --- | | C. | Klinefelter syndrome | |  | |

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| 32. | Gene flow is the:     |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | |  |  | | --- | --- | | A. | Transfer of genes within a population | | |  |  | | --- | --- | | C. | Movement of alleles between populations | | | |  |  | | --- | --- | | B. | Variation of alleles within a population | | |  |  | | --- | --- | | D. | Change of normal genes to mutant alleles | | |

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| 33. | Maps that show chromosome size, bands and individual genes are called:     |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | |  |  | | --- | --- | | A. | Ideograms | | |  |  | | --- | --- | | D. | Anagrams | | | |  |  | | --- | --- | | B. | Chromatograms | | |  |  | | --- | --- | | E. | DNA sequence charts | | | |  |  | | --- | --- | | C. | Polygrams | |  | |

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| 34. | Polyploidy can result when:     |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | |  |  | | --- | --- | | A. | A translocation occurs between two chromosomes | | |  |  | | --- | --- | | D. | A haploid sperm fertilizes a diploid egg | | | |  |  | | --- | --- | | B. | One pair of homologous chromosomes does not separate during meiosis | | |  |  | | --- | --- | | E. | Two ring chromosomes are lost | | | |  |  | | --- | --- | | C. | A developing gamete is haploid | |  | |

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| 35. | The meiotic error that results in aneuploid cells is:     |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | |  |  | | --- | --- | | A. | Crossing over | | |  |  | | --- | --- | | D. | Unequal segregation | | | |  |  | | --- | --- | | B. | Nondisjunction | | |  |  | | --- | --- | | E. | Mosaicism | | | |  |  | | --- | --- | | C. | Recombination | |  | |

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| 36. | Which of the following would not alter a gene's frequency in a population?     |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | |  |  | | --- | --- | | A. | Mutation | | |  |  | | --- | --- | | D. | Inbreeding | | | |  |  | | --- | --- | | B. | Migration | | |  |  | | --- | --- | | E. | A bottle neck | | | |  |  | | --- | --- | | C. | Random mating | |  | |

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| 37. | In the Hardy-Weinberg equation, 2pq refers to:     |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | |  |  | | --- | --- | | A. | The proportion of heterozygotes in a population | | |  |  | | --- | --- | | D. | Individuals who are homozygous recessive | | | |  |  | | --- | --- | | B. | The number of homozygous dominant individuals in a population | | |  |  | | --- | --- | | E. | Individuals with a mutation | | | |  |  | | --- | --- | | C. | The most common phenotype in a population | |  | |

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| 38. | In a population in Hardy-Weinberg equilibrium, the frequency of recessive alleles will \_\_\_\_\_\_\_ over time.     |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | |  |  | | --- | --- | | A. | Increase | | |  |  | | --- | --- | | C. | Remain the same | | | |  |  | | --- | --- | | B. | Decrease | | |  |  | | --- | --- | | D. | Increase and then decrease | | |

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| 39. | Which group is used to calculate the frequency of an allele in a population?     |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | |  |  | | --- | --- | | A. | Homozygous recessives | | |  |  | | --- | --- | | D. | Heterozygotes | | | |  |  | | --- | --- | | B. | The smallest group | | |  |  | | --- | --- | | E. | Heterozygous dominants | | | |  |  | | --- | --- | | C. | Homozygous dominants | |  | |

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| 40. | Interpretation of DNA profiles requires representative population data.     |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | |  |  | | --- | --- | | A. | True | | |  |  | | --- | --- | | B. | False | | |

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| 41. | DNA profiling has been used to:     |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | |  |  | | --- | --- | | A. | Determine the identity of murder victims | | |  |  | | --- | --- | | D. | Overturn wrongful convictions | | | |  |  | | --- | --- | | B. | Establish paternity | | |  |  | | --- | --- | | E. | All of these | | | |  |  | | --- | --- | | C. | Identify victims of terrorism | |  | |

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| 42. | Small scale shifts in allele frequencies is the defining characteristic of\_\_\_\_\_\_\_.     |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | |  |  | | --- | --- | | A. | microevoluition | | |  |  | | --- | --- | | C. | natural selection | | | |  |  | | --- | --- | | B. | macroevolution | | |  |  | | --- | --- | | D. | nonrandom mating | | |

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| 43. | Which type of blood cell is not involved in an immune response?     |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | |  |  | | --- | --- | | A. | T cell | | |  |  | | --- | --- | | D. | B cell | | | |  |  | | --- | --- | | B. | Red blood cell | | |  |  | | --- | --- | | E. | Mast cell | | | |  |  | | --- | --- | | C. | Macrophage | |  | |

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| 44. | Which type of white blood cell secretes specific antibodies?     |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | |  |  | | --- | --- | | A. | T cell | | |  |  | | --- | --- | | D. | Neutrophil | | | |  |  | | --- | --- | | B. | Macrophage | | |  |  | | --- | --- | | E. | Erythrocyte | | | |  |  | | --- | --- | | C. | B cell | |  | |

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| 45. | Antigen Presenting cells are typically\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.     |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | |  |  | | --- | --- | | A. | epitopes | | |  |  | | --- | --- | | C. | B cells | | | |  |  | | --- | --- | | B. | macrophages | | |  |  | | --- | --- | | D. | mast cells | | |

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| 46. | Which of the following is not part of the nonspecific, innate defense?     |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | |  |  | | --- | --- | | A. | phagocytosis | | |  |  | | --- | --- | | C. | inflammatory response | | | |  |  | | --- | --- | | B. | antibodies | | |  |  | | --- | --- | | D. | fever | | |

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| 47. | A woman is given Rhogam to protect future fetuses from hydrops fetalis if:     |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | |  |  | | --- | --- | | A. | She and the fetus are both Rh- | | |  |  | | --- | --- | | D. | She is Rh+ and the father is Rh- | | | |  |  | | --- | --- | | B. | She is Rh+ and the fetus is Rh- | | |  |  | | --- | --- | | E. | She and the father are both Rh- | | | |  |  | | --- | --- | | C. | She is Rh- and the father is Rh+ | |  | |

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| 48. | A transplant that occurs between identical twins is called a(n)\_\_\_\_\_\_     |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | |  |  | | --- | --- | | A. | autograft | | |  |  | | --- | --- | | C. | allograft | | | |  |  | | --- | --- | | B. | isograft | | |  |  | | --- | --- | | D. | xenograft | | |

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| 49. | B cells secrete antibodies when they:     |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | |  |  | | --- | --- | | A. | Bind antigens | | |  |  | | --- | --- | | D. | Are stimulated by activated T cells | | | |  |  | | --- | --- | | B. | Are engulfed by macrophages | | |  |  | | --- | --- | | E. | Undergo apoptosis | | | |  |  | | --- | --- | | C. | Become T cells | |  | |

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| 50. | The enzyme \_\_\_\_\_\_\_\_\_\_ allows HIV to make a DNA copy of its RNA genome.     |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | |  |  | | --- | --- | | A. | Reverse transcriptase | | |  |  | | --- | --- | | D. | DNA transcriptase | | | |  |  | | --- | --- | | B. | DNA polymerase | | |  |  | | --- | --- | | E. | DNA ligase | | | |  |  | | --- | --- | | C. | RNA polymerase | |  | |

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| 51. | HIV destroys the immune system by primarily killing off \_\_\_\_\_\_\_.     |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | |  |  | | --- | --- | | A. | Cytotoxic T cells | | |  |  | | --- | --- | | D. | Macrophages | | | |  |  | | --- | --- | | B. | B cells | | |  |  | | --- | --- | | E. | Erythrocytes | | | |  |  | | --- | --- | | C. | Helper T cells | |  | |

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| 52. | People who cannot become infected with HIV have:     |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | |  |  | | --- | --- | | A. | Extra T cells | | |  |  | | --- | --- | | D. | Antibodies to HIV | | | |  |  | | --- | --- | | B. | Deletions in the genes encoding the CCR5 co-receptor | | |  |  | | --- | --- | | E. | Anti-HIV antigens | | | |  |  | | --- | --- | | C. | A gene encoding a protein that attacks the virus | |  | |

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| 53. | Some people fear that using xenotransplants may introduce viruses that are harmless in animal donors but may cause a new illness in humans.     |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | |  |  | | --- | --- | | A. | True | | |  |  | | --- | --- | | B. | False | | |

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| 54. | In an allograft, the tissue donor is:     |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | |  |  | | --- | --- | | A. | The recipient | | |  |  | | --- | --- | | D. | A different species | | | |  |  | | --- | --- | | B. | A non-relative | | |  |  | | --- | --- | | E. | A monozygotic twin | | | |  |  | | --- | --- | | C. | An identical twin | |  | |

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| 55. | Infecting people with \_\_\_\_\_\_\_ led to vaccination against smallpox.     |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | |  |  | | --- | --- | | A. | Chicken pox | | |  |  | | --- | --- | | D. | Mumps | | | |  |  | | --- | --- | | B. | Pig pox | | |  |  | | --- | --- | | E. | Measles | | | |  |  | | --- | --- | | C. | Cow pox | |  | |

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| 56. | Proper functioning of the immune system depends on the ability to recognize self from nonself.     |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | |  |  | | --- | --- | | A. | True | | |  |  | | --- | --- | | B. | False | | |

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| 57. | Heart valve replacement in humans using a pig valve is an example of a(n):     |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | |  |  | | --- | --- | | A. | Autograft | | |  |  | | --- | --- | | D. | Xenograft | | | |  |  | | --- | --- | | B. | Isograft | | |  |  | | --- | --- | | E. | Unmatched recipient | | | |  |  | | --- | --- | | C. | Allograft | |  | |

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| 58. | Antibiotics are useful against:     |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | |  |  | | --- | --- | | A. | autoimmune diseases | | |  |  | | --- | --- | | C. | viruses | | | |  |  | | --- | --- | | B. | bacteria | | |  |  | | --- | --- | | D. | All of the above | | |

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| 59. | The identification proteins on the surface of cells belong to a class of molecules called the:     |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | |  |  | | --- | --- | | A. | cytokines | | |  |  | | --- | --- | | C. | major histocompatibility complex | | | |  |  | | --- | --- | | B. | Rh factor | | |  |  | | --- | --- | | D. | ABO antigen locus. | | |

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| 60. | Severe combined immune deficiencies affect which branch of the immune system     |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | |  |  | | --- | --- | | A. | humoral | | |  |  | | --- | --- | | C. | both | | | |  |  | | --- | --- | | B. | cellular | | |  |  | | --- | --- | | D. | neither | | |

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| 61. | Antibody production begins:     |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | |  |  | | --- | --- | | A. | In a fetus as its bone marrow develops | | |  |  | | --- | --- | | D. | After birth and a few months after exposure to foreign antigens | | | |  |  | | --- | --- | | B. | In a fetus in response to maternal antigens | | |  |  | | --- | --- | | E. | At the embryo stage | | | |  |  | | --- | --- | | C. | Immediately after birth | |  | |

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| 62. | Antibody diversity is a consequence of:     |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | |  |  | | --- | --- | | A. | Rearranging of HLA proteins on B cell surfaces | | |  |  | | --- | --- | | D. | Differential regulation of antibody gene expression | | | |  |  | | --- | --- | | B. | Point mutations within antibody genes | | |  |  | | --- | --- | | E. | Short sequence repeats (SSRs) and variable number tandem repeats (VNTRs) | | | |  |  | | --- | --- | | C. | Shuffling of antibody genes into different combinations during B cell development | |  | |

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| 63. | Bioweapons:     |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | |  |  | | --- | --- | | A. | have been used for centuries | | |  |  | | --- | --- | | C. | are inexpensive and fairly easy to produce. | | | |  |  | | --- | --- | | B. | employ pathogens to harm innocent people | | |  |  | | --- | --- | | D. | All of the above are true regarding bioweapons. | | |

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| 64. | A(An) \_\_\_\_ is a multi-subunit protein produced by B cells that binds to foreign substances and alters components of the immune system.     |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | |  |  | | --- | --- | | A. | antibody | | |  |  | | --- | --- | | C. | antigen | | | |  |  | | --- | --- | | B. | cytokine | | |  |  | | --- | --- | | D. | None of the above | | |

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| 65. | In an autoimmune disease, the body manufactures autoantibodies against its own cells. Autoimmunity may result from:     |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | |  |  | | --- | --- | | A. | a virus that incorporates and displays a self antigen. | | |  |  | | --- | --- | | D. | from lingering fetal cells | | | |  |  | | --- | --- | | B. | from bacteria or cancer cells that have antigens that resemble self antigens. | | |  |  | | --- | --- | | E. | All of the above. | | | |  |  | | --- | --- | | C. | from unselected T cells. | |  | |

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| 66. | A(n) \_\_\_\_\_\_ is a group of interbreeding members of the same species in a particular area.     |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | |  |  | | --- | --- | | A. | frequency | | |  |  | | --- | --- | | C. | population | | | |  |  | | --- | --- | | B. | incidence | | |  |  | | --- | --- | | D. | equilibrium | | |

Test 4 10 Key

1. A

2. B

3. B

4. C

5. A

6. B

7. B

8. D

9. B

10. D

11. B

12. C

13. C

14. A

15. C

16. B

17. D

18. B

19. B

20. C

21. D

22. B

23. B

24. C

25. B

26. A

27. D

28. C

29. B

30. A

31. E

32. C

33. A

34. D

35. B

36. C

37. A

38. C

39. A

40. A

41. E

42. A

43. B

44. C

45. B

46. B

47. C

48. B

49. D

50. A

51. C

52. B

53. A

54. B

55. C

56. A

57. D

58. B

59. C

60. C

61. D

62. C

63. D

64. A

65. E

66. C

Test 4 10 Summary

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| --- | --- |
| *Category* | *# of Questions* |
| Difficulty: Difficult | 11 |
| Difficulty: Easy | 17 |
| Difficulty: Moderate | 15 |
| Difficulty: Remember/Understand | 1 |
| Lewis - Chapter 13 | 19 |
| Lewis - Chapter 14 | 8 |
| Lewis - Chapter 17 | 17 |
| Quiz 4 | 19 |
| Section: 13.01 | 1 |
| Test 4 | 120 |
| Topic: Genetics | 1 |