**Biology I Exam Review**

1. Which of these is an example of selective breeding?
2. Which group of terms is in the correct order from most general to most specific?
3. What is the relationship between an organism’s DNA and protein specificity?
4. Crossing over most commonly results in \_\_\_\_\_\_\_\_\_\_\_\_.
5. The instructions for the synthesis of a particular protein are carried from the nucleus of a cell to the cytoplasm by \_\_\_\_\_\_\_\_\_\_\_\_.
6. Which of the following best represents the flow of genetic information?
7. The best way to determine the coat-color phenotype of a guinea pig is to \_\_\_\_\_\_\_\_\_\_\_\_.
8. During egg cell production in a human female, the 21st pair of chromosomes may fail to separate. This failure to separate is known as \_\_\_\_\_\_\_\_\_\_\_\_.
9. Mendel hypothesized that reproductive cells have only one factor for each inherited trait is supported by \_\_\_\_\_\_\_\_\_\_\_\_\_.
10. What molecules do both DNA and RNA contain?
11. The genotype of an organism describes the \_\_\_\_\_\_\_\_\_\_.
12. Basic principles of heredity established by Mendel include \_\_\_\_\_\_\_\_\_\_\_\_.
13. Some starfish larvae resemble some primitive chordate larvae. This similarity may be used to suggest that primitive chordates \_\_\_\_\_\_\_\_.
14. Which combination of techniques can be used before birth to detect chromosomal abnormalities?
15. What is the function of tRNA molecules in the synthesis of proteins?
16. The pedigree chart shows the pattern of inheritance for a sex-linked trait. If this couple has another son, what is the probability that he will exhibit this sex-linked trait?
17. Which type of inheritance is most likely responsible for the checkered feather pattern in chickens?
18. A gene in horses controls coat color. White horse crossed with White horse produced 3 white and 2 colored coats. Which is the most likely pattern of inheritance for coat color?
19. The diagram shows the forelimbs of 3 different organisms. These structures are classified as homologous because they \_\_\_\_\_\_\_\_\_\_\_\_\_.
20. According to their classification, which of the following animals are most closely related?
21. According to the data above, the unknown bacteria are most closely related to which species?
22. A sex-linked hereditary disease in which clotting factors are missing from the blood is \_\_\_\_\_\_.
23. In a fruit fly the diploid number of chromosomes is 8, the chromosome number in each gamete is normally \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
24. Observations that both tall pea plants and short pea plants can produce either yellow seeds or green seeds led to the genetic concept known as \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
25. Which of the following statements best describes a DNA molecule?
26. The similarity in structure of the bones of these animals suggest that \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
27. What information best completes the table: Animalia: \_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_.
28. Tay-Sachs is a genetic disorder characterized by a deterioration of the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
29. Two mice that are heterozygous for black coat color are mated. Which genotypic ratio for coat color is expected in the offspring?
30. A gardener crossed red flowers with white flowers, and the offspring flowers were pink. This is an example of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
31. According to Darwin’s theory of evolution, the individuals that tend to survive are those that have \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
32. Which statement describes the parental genotypes that would result from this punnett square?
33. A pedigree traces the inheritance of a trait through a family. Which pattern is typical in a pedigree for an autosomal dominant trait?
34. When a colorblind woman marries a male with normal vision, all their daughters have normal vision, and all their sons are colorblind. This is an example of which type of inheritance?
35. Glands that excrete salt in the mangroves are examples of \_\_\_\_\_\_\_\_\_\_\_\_\_\_.
36. Female cattle with white coats are crossed with male cattle with red coats. Both male and female offspring have roan coats, which are coats with both red hairs and white hairs. Which describes the genetics of coat color in the cattle?
37. Which of the following is correctly matched with its function?
38. In a species of corn, the diploid number of chromosomes is 20. What is the number of chromosomes found in each of the normal egg cells produced by this species?
39. Red-green color blindness affects about 7.0% of the human male population. It affects 0.4% of the human female population. These data suggest that red-green color blindness is a \_\_\_\_\_\_\_.
40. Which of these best explains the pattern of inheritance for colorblindness trait?
41. A cross between two plants that have pink flowers produced plants that have red, pink, or white flowers. Which is the most likely explanation for these results?
42. The cross between XBY x XBXE is illustrated in the square below. Yellow male offspring are represented by \_\_\_\_\_\_\_\_\_\_\_\_\_.
43. Thyroxin synthesized by cattle has been used in the treatment of certain human thyroid disorders. Cattle synthesize pepsin that is similar to the pepsin produced by humans. These facts provide evidence of evolution that support the concept of \_\_\_\_\_\_\_\_\_\_\_\_\_.
44. Which sequence of DNA bases would pair with the ones shown in the partial strand below? TGA CGA CAG
45. The genetic information for making a protein must move from the nucleus to the cytoplasm. Which of these moves this information to the cytoplasm?
46. If two roan cattle are crossed, what percent of the offspring are expected to show the parental phenotype for the coat color?
47. Which process is represented by the diagram shown?
48. Which represents the genotype of a homozygous condition?
49. Which of the following terms applies to traits, such as human eye color, that are controlled by more than one gene?
50. Early stages in the embryo of a fish are similar to the early stage of human and pig embryos. An explanation for this similarity is that the \_\_\_\_\_\_\_\_\_\_\_\_\_\_.
51. The two parts of a double-stranded chromosome are held together by a \_\_\_\_\_\_\_\_\_\_\_\_.
52. A group of organisms that can breed and produce fertile offspring is known as a \_\_\_\_\_\_\_\_\_\_\_.
53. The diagram shows a disorder of chromosome 15. Which of the following identifies the type of chromosomal mutation that has occurred?
54. Trisomy 21 is a genetic disorder in which an individual has and extra copy of chromosome 21. Which process could cause trisomy 21?
55. The gamete produced in the ovary of an animal is the \_\_\_\_\_\_\_\_\_\_\_.
56. In which hereditary disease do the abnormal hemoglobin differ from normal hemoglobin molecules by only a single amino acid?
57. Which genetic abnormality can be identified through karyotyping?
58. Sexual reproduction provides for what to occur?
59. DNA contains the code for constructing which molecules?
60. Which statement best describes a gene?
61. In a certain variety of chicken, the genes for black feather color and the genes for white feather color are codominant. This variety of chicken will most likely have \_\_\_\_\_\_\_\_\_\_\_.
62. The wing of a bat, arm of a man, and flipper of a whale have similar internal structures. Even though these though these structures have diverse functions, their similarities suggest \_\_\_\_\_.
63. If there are 40 chromosomes in each body cell of an organism, what is the total number of chromosomes normally present in a gamete produced by that organism?
64. Fruit flies exhibit an assortment of different eye colors, each controlled by a specific gene. However, no more than a single pair of these genes controls eye color in each fly. The inheritance of eye color in fruit flies is an example of \_\_\_\_\_\_\_\_\_\_.
65. Traits controlled by genes on the X-chromosome are said to be \_\_\_\_\_\_\_\_\_\_\_.
66. Which of the following statements is supported by the similarities bween the turtle embryo and the chicken embryo?
67. PKU a human disease results from the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
68. In order for humans to have a normal number of chromosomes, sex cells must be \_\_\_\_\_\_\_.
69. Which of these is an example of a heterozygous genotype?
70. Human blood typing includes four different blood types. Based on this information which of the following describes alleles IAIB?
71. During DNA replication, the wrong nucleotide was inserted in the DNA sequence. Which of the following terms describes this situation?
72. A cross between a red cow with a white bull produces all roan offspring. This type of inheritance is known as \_\_\_\_\_\_\_\_\_\_\_.
73. The mole rat is an example an animal that avoids predators by living underground. Its long claws and teeth allow it to dig deep holes. Scientists believe the ancestors of the mole rat lived above ground and had shorter claws and teeth. Which of these processes resulted in long claws and teeth found in the modern mole rat?
74. The bones that make up the forelimbs of monkeys, cats, whales, and birds are similar. Which statement supports the evolutionary relationship of these animals?
75. Transfer RNA molecules pick up amino acids which are free in the cytoplasm and carry them to \_\_\_\_\_\_\_\_\_\_\_\_\_.
76. The molecule represented by the lettered symbols shown is a \_\_\_\_\_\_\_\_\_\_\_\_\_\_.
77. The leg structures of many different vertebrates are quite similar in number and location to bones. Most scientists would probably explain this on the basis of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
78. Shelly and Jason are siblings, but Shelly looks like their father while Jason looks like their mother. Which of the following statements best explains the difference in Shelly’s and Jason’s features?
79. What is the normal number of chromosomes in a human zygote?
80. In a molecule of double-stranded DNA, the amount of adenine present is always equal to the amount of \_\_\_\_\_\_\_\_\_\_\_.
81. The transfer of a section of one chromosome to a nonhomologous chromosome is known as \_\_\_\_\_\_\_\_\_\_\_\_\_.
82. Which term refers to the sequence of events that cells go through as they grow and divide?
83. Ursus horribilis, the scientific name for the grizzly bear, refers to the bear’s \_\_\_\_\_\_\_\_\_\_\_.
84. What is the difference between mitosis and meiosis?
85. The diagram shown represents the inheritance of stem height in garden peas. The diagram best illustrates \_\_\_\_\_\_\_\_\_\_\_\_\_.
86. Which of the following cell types is formed by meiosis?
87. Sharks and turtles have many similarities in their proteins. What does this suggest about these animals?
88. A diploid cell of a normal human male contains \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
89. Which of the following produces identical nuclei in cells?
90. Humans may have type O, A, B, or AB blood. This blood type is a trait that is determined by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
91. Down syndrome in humans may result from \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
92. A person with type O blood marries a person with type AB blood. Possible blood genotypes of their children are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
93. In mussels, brown (B) coloring is dominant, and blue (b) coloring is recessive. If a blue mussel has two brown parents, what percentage of the total offspring of these brown parents are expected to be blue?
94. The transmission of a genetic disorder is represented in the pedigree below. What is the mode of inheritance shown in the pedigree?
95. A human male will normally transmit the genes on his X-chromosome to \_\_\_\_\_\_\_\_\_\_\_\_\_.
96. The cactus plant shown above lives in a desert environment. Which characteristic of this plant could be found in many other desert plants?
97. When lions prey on a herd of antelope, some antelope are eliminated. Which part of Darwin’s theory of evolution may be used to describe this situation?
98. How is natural selection in the evolution of long necks in giraffes best explained?
99. Which sequence represents the process of meiosis?
100. A base sequence is shown: ACAGTGC How would the base sequence be coded on the mRNA?