

Name:

Period:

### Semester 2 Final Exam Review

1. The effects of genetic drift are most apparent in a \_\_\_\_\_ population.
2. A \_\_\_\_\_ is the complete genetic information contained in an individual.
3. \_\_\_\_\_ dating can be done through the use of index fossils and rock layers.
4. What is the shape of proteins when they exit the ribosome? \_\_\_\_\_
5. Name 2 factors that can influence phenotype? \_\_\_\_\_
6. Give an example of a genetic disease caused by a trisomy. \_\_\_\_\_
7. What is nondisjunction? \_\_\_\_\_
8. The alleles for red and white flower color show incomplete dominant. The heterozygous genotype would be which color?
9. What is the difference between a gene and a chromosome? \_\_\_\_\_
10. Traits like skin color and height can be represented by a \_\_\_\_\_ graph.
11. DNA has one old strand and one \_\_\_\_\_ strand after replication.
12. Diagram a homologous structure in a human, a bat and a whale.
  
13. When DNA makes a copy of its self it is known as \_\_\_\_\_.
14. Meiosis results in \_\_\_\_\_ genetically different cells.
15. Cytokinesis occurs just after this stage of mitosis. \_\_\_\_\_
16. Which phenotype(s) is favored in Stabilizing selection? \_\_\_\_\_ Disruptive? \_\_\_\_\_ Directional? \_\_\_\_\_
17. What occurs in asexual reproduction? \_\_\_\_\_ Give an example of an organism this may occur in? \_\_\_\_\_
18. What type of speciation occurs when new species arise as a result of geographic isolation? \_\_\_\_\_
19. Storks follow the same dog that was the first living thing they saw when they hatched. This behavior is known as \_\_\_\_\_.
20. Give an example of a phenotype. \_\_\_\_\_ Give an example of a genotype. \_\_\_\_\_
21. If a worm's somatic cells have 52 chromosomes how many chromosomes do the new cells have after mitosis? \_\_\_\_\_
22. The process by which a population becomes better suited to its environment is known as \_\_\_\_\_.
23. The DNA in the nucleus of your epithelial cells is (the same or different) as the DNA in your muscle cells.
24. The fact that many forms of aquatic animals look alike even though they had diverse ancestors can be attributed to \_\_\_\_\_ evolution.
25. Mutations. Diagram an example of a deletion, a duplication, an inversion and a translocation.

26. The theory of \_\_\_\_\_ states that species change over time, sometimes developing into new species.
27. A scientist analyzes the bases in a segment of DNA from a human skin cell to determine if it codes for protein. The base "T" is 30% of the bases in this segment of DNA. What is the percentage of bases that would be G? \_\_\_\_\_
28. If a dog usually gets food after it hears the ringing of a bell and it begins to salivate whenever a bell rings the dog is said to have learned through \_\_\_\_\_.
29. The law of \_\_\_\_\_ explains that alleles of a gene separate from each other during meiosis.
30. A population will experience its full biotic potential when resources are \_\_\_\_\_.
31. In rabbits, black fur (B) is dominant over brown fur (b). Cross two heterozygous rabbits. What is the genotype ratio? \_\_\_\_\_ What is the phenotype ratio? \_\_\_\_\_
32. What are the 4 bases found in RNA? \_\_\_\_\_ In DNA? \_\_\_\_\_
33. Natural Selection is the only process that leads to \_\_\_\_\_
34. Place the following in order from largest to smallest: tissue, organism, organ, cell, organ system
35. The instructions for the genetic traits of an organism are directly determined by the sequence of \_\_\_\_\_ in DNA molecules.
36. Give an example of a homozygous genotype. \_\_\_\_\_ Heterozygous. \_\_\_\_\_
37. DNA in each chromosome is condensed into compact sister chromatids which are attached at the centromere during this phase of mitosis. \_\_\_\_\_.
38. Name 3 mechanisms which cause epigenetic changes to the DNA.  
\_\_\_\_\_
39. \_\_\_\_\_ cells are being used to test new drugs and to provide cell-based therapy because they can mimic differentiation of different cells and can be signaled to repair tissue.
40. Give an example of a mutagen. \_\_\_\_\_
41. What is the genotype of a woman with Hemophilia? \_\_\_\_\_
42. What cells are produced from oogenesis at the end of meiosis? \_\_\_\_\_
43. Why do male express sex-linked traits more than females? \_\_\_\_\_
44. Diagram and label a nucleotide.
45. A short segment of DNA that directs the formation of proteins is called a \_\_\_\_\_.
46. Endoderm, mesoderm, and ectoderm are all examples of \_\_\_\_\_.
47. During their early stages of development, the embryos of reptiles, birds, and mammals look very similar. This suggests that reptiles, birds, and mammals have a common \_\_\_\_\_.
48. The genotypes of a husband and wife are BO x AO. Among the blood types of their children, how many different genotypes and phenotypes are possible? \_\_\_\_\_
49. How many divisions are there in mitosis? \_\_\_\_\_ Meiosis? \_\_\_\_\_
50. What are the 2 ways of finding the age of a fossil? \_\_\_\_\_
51. Height is an example of this type of trait. \_\_\_\_\_
52. Can epigenetics affect the phenotype of an organism? \_\_\_\_\_
53. \_\_\_\_\_ is the activation of a gene that results in the formation of a protein.
54. What happens during the S phase of the cell cycle? \_\_\_\_\_
55. Give an example of a learned behavior. \_\_\_\_\_
56. The regions of DNA that code for proteins or traits are called \_\_\_\_\_.

57. Name 2 differences between DNA and RNA. \_\_\_\_\_
58. Are evolution and natural selection the same thing? \_\_\_\_\_
59. The life of a cell from the time it first forms from a dividing parent cell until its own division into two cells is referred to as the \_\_\_\_\_.
60. DNA serves as a \_\_\_\_\_ to build mRNA.
61. A dihybrid cross (AaBb x AaBb) will result in what offspring phenotype ratio? \_\_\_\_\_
62. As multicellular organisms grow and develop, their cells begin to \_\_\_\_\_ and take on specific roles and jobs of the body.
63. An \_\_\_\_\_ is best defined as a specific form of a gene.
64. Somatic cells are \_\_\_\_\_ while gametes are haploid.
65. If the original DNA sequence is GCTACCTTGGACT and a replication error occurs resulting in the mutated sequence GCTACCTTGCT, then what type of mutation is this? \_\_\_\_\_
66. Gametes fuse to form a \_\_\_\_\_.
67. \_\_\_\_\_ evolution occurs when unrelated species develop similar structures in similar environments.
68. Baldness is dominant in \_\_\_\_\_ and recessive in \_\_\_\_\_.
69. In the leading DNA sequence AACGACTTAGCTTAG, what would be the sequence of bases of the complimentary mRNA strand? \_\_\_\_\_
70. A polypeptide protein found in the cytoplasm of a cell contains 20 amino acids. How many nucleotides would be required in the mRNA for this polypeptide to be translated? \_\_\_\_\_
71. \_\_\_\_\_ is when two different species that live close evolve together.
72. Transcription factors are regulatory proteins that control the start or rate of \_\_\_\_\_.
73. Lactation (milk production in women) increases as the baby suckles more. So, more suckling means more milk is produced. Is this positive or negative feedback? \_\_\_\_\_
74. After a zygote is formed, specialization of cells occurs. Through which process do the cells of a zygote become specialized? \_\_\_\_\_
75. When describing the potential of a stem cell, the terms totipotent, pluripotent, and unipotent refer to the ability of the \_\_\_\_\_ cell to differentiate into other cells.
76. A cell spends most of its time in \_\_\_\_\_ where it doubles in size.
77. The process where messenger RNA is created from DNA is called \_\_\_\_\_.
78. Diagram an example of crossing over in chromosomes.
79. DNA in each chromosome is condensed into compact sister chromatids attached by a centromere during the \_\_\_\_\_ stage of mitosis.
80. \_\_\_\_\_ is the process which a population becomes better suited to its environment.
81. The dog breeds we have today were developed through \_\_\_\_\_ selection.
82. \_\_\_\_\_ is the failure of chromosomes to separate correctly during of meiosis.
83. Before any eukaryotic cell undergoes mitosis, it must copy its \_\_\_\_\_.
84. Mitosis is a form of \_\_\_\_\_ reproduction used by unicellular organisms.
85. What is this process? DNA  $\Rightarrow$  mRNA \_\_\_\_\_
86. The 2N number for humans is \_\_\_\_\_.

87. DNA replication involves the breaking of hydrogen bonds between the \_\_\_\_\_ bases.
88. When the human body is responding to stress, the hormone adrenaline is released. A short time later, the body returns to normal. This is an example of how a human maintains \_\_\_\_\_.
89. What unique step occurs during meiosis between homologous chromosomes that does not occur during mitosis? \_\_\_\_\_
90. Give an example of a gamete. \_\_\_\_\_
91. During \_\_\_\_\_, the amino acid detaches from the transfer RNA molecule and attaches to the end of a growing protein chain when the transfer RNA anticodon is paired up with the messenger RNA codon.
92. Transcription factors are regulatory proteins that control the start or rate of RNA \_\_\_\_\_.
93. Give an example of a factor that contributes to gene flow between populations. \_\_\_\_\_
94. In humans, having freckles (F) is dominant over not having freckles (f). What percentage of the offspring would have freckles if the dad is heterozygous for freckles and the mom is homozygous for no freckles? \_\_\_\_\_
95. Give an example of a polygenic trait. \_\_\_\_\_
96. Name the following structures or processes:
  - A. \_\_\_\_\_
  - B. \_\_\_\_\_
  - C. \_\_\_\_\_
  - D. \_\_\_\_\_
  - E. \_\_\_\_\_
  - F. \_\_\_\_\_
  - G. \_\_\_\_\_

