Honors Bio Ch 16 TEST

Multiple Choice
Identify the choice that best completes the statement or answers the question.

____ 1. Which of the following statements describe what all members of a population share?
a. They are temporally isolated from each other.
b. They are geographically isolated from each other.
c. They are members of the same species.
d. They have identical genes.

____ 2. All the genes of all members of a particular population make up the population's
a. relative frequency.
b. phenotype.
c. genotype.
d. gene pool.

____ 3. If an allele makes up one fourth of a population's alleles for a given trait, its relative frequency is
a. 100 percent.
b. 75 percent.
c. 25 percent.
d. 4 percent.

____ 4. In a population, the sum of the relative frequencies of all alleles for a particular trait is
a. equal to 100 percent.
b. equal to the number of alleles for the trait.
c. constantly changing.
d. dependent on the number of alleles.

____ 5. A change in a sequence of DNA is called a
a. recombination.
b. polygenic trait.
c. single-gene trait.
d. mutation.

____ 6. The two main sources of genetic variation are
a. genotypes and phenotypes.
b. gene shuffling and mutations.
c. single-gene traits and polygenic traits.
d. directional selection and disruptive selection.

____ 7. In organisms that reproduce sexually, inheritable variation is due mostly to
a. mutations during gamete formation.
b. polygenic traits.
c. gene shuffling during gamete formation.
d. the effects of radiation.

____ 8. Gene shuffling includes the independent movement of chromosomes during meoisis as well as
a. mutations from radiation.
b. changes in the frequencies of alleles.
c. crossing-over.
d. mutations from chemicals.

____ 9. A single-gene trait that has two alleles and that shows a simple dominant-recessive pattern will result in
a. one phenotype.
b. two phenotypes.
c. four phenotypes.
d. millions of phenotypes.

____ 10. The phenotypes for a typical polygenic trait can often be expressed as
a. a bar graph.
b. a bell-shaped curve.
c. Mendelian ratios.
d. allele frequencies.

____ 11. Compared to a polygenic trait, a single-gene trait tends to have
a. fewer phenotypes.
b. more phenotypes.
c. the same number of phenotypes.
d. phenotypes that form a bell-shaped curve.

____ 12. A polygenic trait can have
a. many possible genotypes, but few possible phenotypes.
b. many possible genotypes, producing many possible phenotypes.
c. fewer phenotypes than most single-gene traits.
d. fewer genotypes than most single-gene traits.

____ 13. Natural selection acts directly on
a. alleles.
b. genes.
c. individual organisms.
d. mutations.

____ 14. Which of the following is NOT a way in which natural selection affects the distribution of phenotypes?
a. directional selection
b. stabilizing selection
c. disruptive selection
d. chance events

____ 15. When individuals at only one end of a bell curve of phenotype frequencies have high fitness, the result is
a. directional selection.
b. stabilizing selection.
c. disruptive selection.
d. genetic drift.

____ 16. When individuals with an average form of a trait have the highest fitness, the result is
a. not predictable.
b. disruptive selection.
c. directional selection.
d. stabilizing selection.

____ 17. In a population of finches in which one group of birds has a short, parrotlike beak and another group has a long, narrow beak, what process has probably occurred?
a. directional selection
b. disruptive selection
c. stabilizing selection
d. genetic drift

____ 18. If a mutation introduces a new skin color in a lizard population, which factor might determine whether the frequency of the new allele will increase?
a. how many other alleles are present
b. whether the mutation makes some lizards more fit for their environment than other lizards
c. how many phenotypes the population has
d. whether the mutation was caused by nature or by human intervention

____ 19. In genetic drift, allele frequencies change because of
a. mutations.
b. chance.
c. natural selection.
d. genetic equilibrium.

____ 20. Which of the following events do biologists consider a random change?
a. directional selection
b. speciation
c. disruptive selection
d. genetic drift

____ 21. Genetic drift tends to occur in populations that
a. are very large.
b. are small.
c. are formed from new species.
d. have unchanging allele frequencies.

____ 22. The type of genetic drift that follows the colonization of a new habitat by a small group of individuals is called
a. the Hardy-Weinberg principle.
b. the founder effect.
c. directional selection.
d. stabilizing selection.

____ 23. One similarity between natural selection and genetic drift is that both events
a. are based completely on chance.
b. begin with one or more mutations.
c. involve a change in a population's allele frequencies.
d. take place only in very small groups.

____ 24. The situation in which allele frequencies of a population remain constant is called
a. evolution.
b. genetic drift.
c. genetic equilibrium.
d. natural selection.

____ 25. The separation of populations by barriers such as rivers, mountains, or bodies of water is called
a. temporal isolation.
b. geographic isolation.
c. behavioral isolation.
d. genetic equilibrium.

____ 26. A factor that is necessary for the formation of a new species is
a. reproduction at different times.
b. geographic barriers.
c. different mating behaviors.
d. reproductive isolation.

____ 27. What situation might develop in a population having some plants whose flowers open at midday and other plants whose flowers open late in the day?
a. behavioral isolation
b. geographic isolation
c. temporal isolation
d. genetic drift

____ 28. The Galápagos finch species are an excellent example of
a. speciation.
b. genetic equilibrium.
c. stabilizing selection.
d. selection on single-gene traits.

____ 29. In Rosemary and Peter Grant's study of the Galápagos finches, what process was encouraged by ecological competition during the dry season?
a. stabilizing selection
b. reproductive isolation
c. directional selection
d. genetic drift