Name: _____ Date: _____ Period: _____

Homework: Natural Selection

Answer the following questions about natural selection using your notes.

1. Humans have been on every continent in the world and can be found living in every biome. All of the members of the human species are collectively referred to as the human –
A community **B** population **C** ecosystem **D** organelles

2. The long-term survival of any species of organism is possible only if the organisms can —
A migrate when temperatures change **C** find protection from predators
B reproduce successfully **D** locate a constant food source

3. Which of the following scenarios is least likely to be associated with a population exceeding its carrying capacity?
A mutation rates are greatly reduced **C** food resources have become limited
B no new mating partners are available **D** all available habitats are occupied

The mice in this picture contain *different versions* of the gene for fur color within their genomes.

4. What do we call *different versions* of a gene? _____

5. What do we call the *physical expression* of a genetic trait? _____

6. What process creates new versions of a gene? _____

7. Populations tend to produce more offspring than can survive based on the resources available in the ecosystem. When this occurs, the organisms most likely to acquire resources and survive are those members of the population with the –
A most mutations **B** most competition **C** fewest strengths **D** best adaptations

8. If an allele produces a beneficial adaptation, then the organism is more likely to –
A leave the population **C** survive and reproduce
B create offspring with mutations **D** be outcompeted for food

9. When a gene increases an organism's ability to survive, and this organism goes on to reproduce more offspring with the gene, what will eventually increase?
A the carrying capacity of the population **C** the frequency of the gene in the population
B the number of genes in the offspring **D** the number of mutations in the organism

10. Write a description of **natural selection** in your own words. *Use complete sentences.*

11. Which of the following circumstances is most likely to force a population to adapt to a new set of environmental conditions?

A the presence of a climax community
B an increase in available habitats
C a reduction in human activity in the area
D migration to a different climate

12. A plant population lives in a climate where rainfall is common. Over time, the entire plant population has become well adapted to these conditions. Which of the following would be the greatest threat to the entire population's survival?

A mutations producing new alleles
B a short period of increased rainfall
C a period of drought
D reduce numbers of herbivores

13. Changes in climate can cause great changes in the community of species that live in an area. If a species is unable to adapt to a new climate, it will most likely become –

A migratory **B** extinct **C** a predator **D** a new species

14. The Earth has gone through several periods of extreme climate change, but life has continued throughout each of these. This is because Earth's biota contains a great amount of –

A similarity **B** water **C** diversity **D** sentience

15. Mutations naturally occur in organisms as new cells are produced. These mutations can produce new versions of genes, or alleles, in a population. However, mutations that produce new alleles are only passed on to offspring if they occur in which type of cell?

A nervous **B** gamete **C** epithelial **D** muscle

16. Over many generations, the length of necks in the giraffe population increased. This occurred as new alleles were introduced that created longer necks in individuals, and these individuals -

A reproduced, increasing the frequency of these alleles in the population
B died, removing the mutations from the gene pool of the population
C migrated, taking their new alleles with them to new ecosystems
D were captured, allowing scientists to isolate the new genes

17. Longer necks are an adaption that allows giraffes to do which of the following?

A reach more food sources
B prevent water loss
C reduce acid reflux in stomach
D defend themselves from predators

18. Natural selection is the process that increases the frequency of beneficial alleles in a –

A tissue **B** cell **C** population **D** organism

19. Use your notes from today to help fill in the blanks below.

Beneficial alleles make organisms more likely to _____ and _____.

The _____ of beneficial alleles _____ in a population.

Natural selection changes _____, not individuals.