BIOLOGY · ALASKA

Biology
Practice Test

Unit 3: Evolution and Diversity

25 Questions

Original practice test based on the Alaska curriculum. Work through each question, then check your answers at the end.

This practice test was made by AI and there may be mistakes. If a question or answer looks wrong, use the Flag a mistake button to let Brett know so he can fix it.

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Question 1

Natural selection acts on variation within a population Individuals with traits best suited to the environment are more likely to

A) Survive and reproduce

B) Stop mutating

C) Change their genes at will

D) Become a new species at once

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Question 2

The ultimate source of new genetic variation in a population is

A) Migration

B) Competition

C) Predation

D) Mutation

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Question 3

A trait that helps an organism survive and reproduce in its environment is called an

A) Analog

B) Fossil

C) Adaptation

D) Allele only

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Question 4

The fossil record provides evidence for evolution mainly because it shows

A) Only living species

B) Species that lived in the past

C) Future species

D) Species that never changed

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Question 5

The wing of a bat and the arm of a human have similar bone structure They are best described as

A) Analogous structures

B) Vestigial structures

C) Embryonic structures

D) Homologous structures

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Question 6

The wing of an insect and the wing of a bird have similar functions but different origins They are

A) Analogous

B) Homologous

C) Vestigial

D) Embryonic

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Question 7

A vestigial structure such as the human appendix is best described as a structure that

A) Has a major new function

B) Appears only in embryos

C) Has lost most or all of its original function

D) Is found in one species only

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Question 8

Early embryos of fish birds and mammals look similar This similarity suggests they share

A) The same habitat

B) The same diet

C) The same adult size

D) A common ancestor

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Question 9

Two species with very similar DNA sequences are most likely to be

A) Closely related

B) Unrelated

C) From different domains

D) Extinct

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Question 10

Speciation can begin when a river divides one population into two groups that no longer interbreed This is an example of

A) Genetic drift

B) Artificial selection

C) Geographic isolation

D) Convergent evolution

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Question 11

Genetic drift has its largest effect in

A) Very large populations

B) Small populations

C) Populations with no mutations

D) Populations with unlimited resources

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Question 12

A population bottleneck occurs when

A) A disaster sharply reduces population size

B) A population grows without limit

C) Many new species form at once

D) Two species merge

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Question 13

Gene flow between two populations tends to

A) Increase differences between them

B) Stop all mutations

C) Create a new domain

D) Reduce differences between them

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Question 14

Antibiotic resistance spreads in bacteria mainly because resistant bacteria

A) Learn to resist

B) Are created by the antibiotic

C) Survive treatment and reproduce

D) Stop dividing

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Question 15

Bacteria from a hospital were tested against an antibiotic In 2010 80 percent of samples were killed In 2020 only 35 percent of samples were killed What does this change best show

A) The antibiotic became stronger

B) Resistance increased in the population

C) Bacteria stopped evolving

D) The samples were identical

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Question 16

Finches on an island were studied in a dry year and a wet year In the dry year large hard seeds were common and finches with larger beaks survived better In the wet year small soft seeds were common Which claim is best supported

A) Beak size does not affect survival

B) All finches have identical beaks

C) Finches choose their beak size

D) Selection pressures can change with conditions

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Question 17

In a rock sequence the oldest undisturbed layers are usually found

A) At the top

B) In the middle only

C) At the bottom

D) At random

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Question 18

After one half life what fraction of a radioactive sample remains

A) One half

B) All of it

C) One quarter

D) None of it

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Question 19

In binomial nomenclature each species is given a name made of its

A) Genus and species

B) Family and order

C) Kingdom and phylum

D) Class and order

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Question 20

From broadest to most specific the correct order of taxonomic ranks is

A) Species genus family order class phylum kingdom

B) Kingdom class phylum order genus family species

C) Phylum kingdom class family order genus species

D) Kingdom phylum class order family genus species

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Question 21

Adaptive radiation occurs when one ancestral species gives rise to many species that fill different

A) Continents

B) Niches

C) Time periods

D) Chromosomes

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Question 22

A phylogenetic tree shows

A) How many individuals live today

B) The evolutionary relationships among species

C) The food web of an ecosystem

D) The age of every rock

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Question 23

DNA similarity data for four species compared with species A are given Species B shares 98 percent of its DNA sequence with species A Species C shares 85 percent Species D shares 72 percent Which species is most closely related to species A

A) Species B

B) Species C

C) Species D

D) All are equally related

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Question 24

A population of salmon is split by a new dam Over many generations the two groups can no longer produce fertile offspring together This is an example of

A) Extinction

B) Succession

C) Speciation

D) Competition

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Question 25

A fossil sample starts with 800 grams of a radioactive isotope with a half life of 1000 years How many grams remain after 3000 years

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ANSWER KEY

1. A
2. D
3. C
4. B
5. D
6. A
7. C
8. D
9. A
10. C
11. B
12. A
13. D
14. C
15. B
16. D
17. C
18. A
19. A
20. D
21. B
22. B
23. A
24. C
25. 100

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