BIOLOGY · ARKANSAS

# Biology
## Practice Test

### Unit 3: Evolution and Diversity

25 Questions

Original practice test based on the Arkansas 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

Evolution is best defined as a change over generations in the

A) Allele frequencies of a population

B) Size of one individual

C) Behaviour of one animal

D) Climate of a region

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Question 2

Natural selection acts on the variation already present in a population, favouring individuals with traits that increase

A) Body size only

B) Survival and reproduction

C) Speed only

D) Colour only

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Question 3

Darwin finch beaks differ between islands mainly because different food sources favoured different

A) Feather colours only

B) Song volumes only

C) Beak shapes

D) Nesting heights only

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Question 4

Fossils are found in rock layers at different depths. What is generally true of fossils in deeper layers compared with fossils in shallower layers?

A) Younger than fossils above them

B) From the same year

C) Unrelated to age

D) Older than fossils in shallower layers

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Question 5

Homologous structures, such as the forelimbs of a bat, a whale, and a human, suggest

A) Common ancestry

B) Identical environments only

C) Convergent function only

D) No evolutionary relationship

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Question 6

Analogous structures, such as wings of birds and wings of insects, are similar in function but not in ancestry, so they are evidence of

A) Common ancestry

B) Convergent evolution

C) Homology

D) Vestigial loss

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Question 7

A vestigial structure, such as the human appendix, is a structure that

A) Is fully functional in all species

B) Appears only in embryos

C) Has lost most or all of its original function

D) Is made only in adults

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Question 8

Embryos of vertebrates look similar early in development, which supports the idea of

A) Separate creation only

B) No genetic relationship

C) Identical adult forms

D) Common ancestry

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Question 9

DNA sequence similarity between species is strong evidence for evolution because closely related species tend to share

A) More similar DNA sequences

B) Identical habitats only

C) Identical diets only

D) Identical body sizes

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Question 10

The Hardy Weinberg principle describes a population that is not evolving, assuming no mutation, migration, selection, or genetic drift and

A) Small size only

B) Random mating and very large size

C) Strong selection

D) Frequent mutation

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Question 11

Genetic drift changes allele frequencies by chance and has its strongest effect in

A) Very large populations

B) Populations with no variation

C) Small populations

D) Populations under strong selection

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Question 12

A bottleneck occurs when a population is greatly reduced in size, leaving survivors with

A) More variation than before

B) No alleles at all

C) Only new mutations

D) Less genetic variation than before

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Question 13

The founder effect occurs when a small group starts a new population, so the new population may have allele frequencies that

A) Differ from the original population

B) Match the original exactly

C) Contain no variation

D) Contain all original alleles equally

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Question 14

Gene flow between two populations tends to

A) Increase differences always

B) Reduce genetic differences between them

C) Stop all evolution

D) Create new species instantly

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Question 15

A mutation creates new genetic variation by changing

A) A population size

B) A habitat only

C) A DNA sequence

D) A mating behaviour only

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Question 16

In a population, babies with very low and very high birth weights survive less well than babies of average weight. Which type of selection is acting?

A) stabilizing selection

B) directional selection

C) disruptive selection

D) artificial selection

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Question 17

Directional selection shifts a population toward one extreme, for example darker moths becoming more common when soot darkens trees, because darker moths are

A) Better camouflaged from predators

B) Larger in size

C) Faster fliers

D) More colourful

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Question 18

Disruptive selection favours both extremes over the average, which can

A) Eliminate all variation

B) Increase variation in the population

C) Favour only the average

D) Stop selection

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Question 19

Speciation requires reproductive isolation, so two groups no longer

A) Share a habitat

B) Eat the same food

C) Interbreed to produce fertile offspring

D) Look similar

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Question 20

Geographic isolation can lead to speciation when a physical barrier

A) Increases gene flow

B) Removes all variation

C) Makes climates identical

D) Prevents gene flow between groups

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Question 21

Behavioural isolation occurs when differences in mating calls or courtship prevent

A) Interbreeding

B) Feeding

C) Migration

D) Growth

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Question 22

Adaptive radiation is rapid diversification from one ancestor into many species adapted to

A) The same niche only

B) Different niches

C) One food only

D) No niches

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Question 23

A phylogenetic tree shows evolutionary relationships, and species sharing a more recent common ancestor are

A) More distantly related

B) Unrelated

C) More closely related

D) Always identical

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Question 24

Bacteria can evolve antibiotic resistance when resistant cells survive treatment and

A) Lose their DNA

B) Stop dividing

C) Become viruses

D) Reproduce, passing resistance to offspring

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Question 25

Artificial selection differs from natural selection because humans, not nature, choose which individuals

A) Reproduce

B) Migrate

C) Mutate

D) Become fossils

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# ANSWER KEY

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

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