ONTARIO BIOLOGY, GRADE 11, UNIVERSITY PREPARATION (SBI3U) · UNIT B · 25 QUESTIONS

Evolution — Practice Test

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.

1 **Natural selection acts on**

- A new traits created by need alone
- B traits acquired during an lifetime
- C variation that already exists in a population
- D only the largest individuals

Understand It with Pulse | Flag a mistake

2 **Which statement best describes fitness in evolutionary biology?**

- A Physical strength only
- B Lifespan only
- C Speed only
- D The number of offspring an organism contributes to the next generation

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3 **A population of beetles has green and brown forms. Birds eat green beetles more easily on brown soil. Over time the population will most likely become**

- A more brown
- B more green
- C all green
- D unchanged

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4 **The fossil record supports evolution because fossils show**

- A that all species appeared at the same time
- B a sequence of life forms changing over time
- C that extinct species never existed
- D only modern species

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5 **Homologous structures, such as the forelimbs of whales, bats, and humans, suggest**

A identical environments

B convergent evolution only

C a common ancestor

D no evolutionary relationship

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6 **The wings of birds and insects look alike and both are used for flight, but they evolved separately. Structures like these are called analogous because they**

A a recent common ancestor

B identical DNA

C identical bone structure

D similar functions in similar environments

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7 **Which is an example of artificial selection?**

- A Farmers breeding cows that give more milk
- B Wolves hunting deer
- C Drought killing weak plants
- D A predator eating slow prey

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8 **Genetic drift is best described as**

- A selection for the best adapted trait
- B random change in allele frequencies, especially in small populations
- C mutation caused by the environment
- D migration of the fittest individuals

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9

A bottleneck effect occurs when

A a population grows very large

B two populations merge

C a population is greatly reduced in size and then regrows from few survivors

D a new species is formed by selection alone

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10

Gene flow between two populations tends to

A increase differences between them

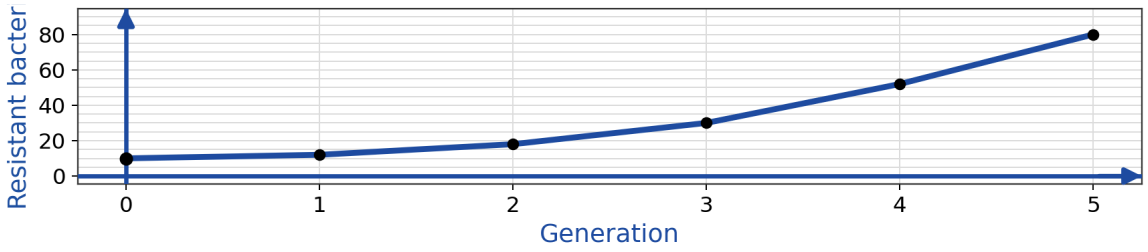
B cause immediate speciation

C stop all mutation

D reduce differences between them

Understand It with Pulse | Flag a mistake

11 **The graph shows the number of antibiotic resistant bacteria over five generations. How many resistant bacteria are present at generation 4?**



ANSWER

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12 **Speciation is most likely when populations are**

A geographically isolated for a long time with different selection pressures

B kept together with frequent mating

C identical in every trait

D very large and unchanging

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13 **Two populations are considered different species under the biological species concept if they**

A look different

B cannot interbreed to produce fertile offspring

C live in different places

D eat different foods

Understand It with Pulse | Flag a mistake

14 **Which evidence for evolution comes from comparing DNA sequences?**

A Fossil layers

B Vestigial structures

C Molecular homology

D Biogeography alone

Understand It with Pulse | Flag a mistake

15 **A vestigial structure, such as the human appendix, is best explained as**

A a structure with no evolutionary history

B a newly evolved structure

C a structure created by use

D a reduced structure inherited from an ancestor in which it was larger or functional

Understand It with Pulse | Flag a mistake

16 **Lamarck theory of acquired characteristics is not supported because**

A traits acquired during life are generally not passed to offspring through genes

B organisms never change

C fossils do not exist

D populations never vary

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17 **Darwin and Wallace proposed that evolution occurs mainly by**

A inheritance of acquired traits

B natural selection

C sudden creation of new species

D genetic drift alone

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18 **In a population of 400 individuals, 25 percent show a recessive trait pattern counted in a survey. How many individuals show that pattern?**

ANSWER _____

Understand It with Pulse | Flag a mistake

19 **In a population of 800 individuals, 50 percent show a recessive trait pattern counted in a survey. How many individuals show that pattern?**

ANSWER _____

Understand It with Pulse | Flag a mistake

20 **In a population of 600 individuals, 75 percent show a recessive trait pattern counted in a survey. How many individuals show that pattern?**

ANSWER _____

Understand It with Pulse | Flag a mistake

21 **In a population of 1000 individuals, 40 percent show a recessive trait pattern counted in a survey. How many individuals show that pattern?**

ANSWER _____

Understand It with Pulse | Flag a mistake

22 **In a population of 500 individuals, 20 percent show a recessive trait pattern counted in a survey. How many individuals show that pattern?**

ANSWER _____

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23 **Antibiotic resistance spreads in bacteria mainly because**

- **A** antibiotics create resistant mutations on demand
- **B** all bacteria become resistant at the same rate
- **C** resistant bacteria survive treatment and reproduce
- **D** antibiotics change bacterial DNA directly in every cell

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24 **Which condition is required for natural selection to occur?**

- **A** Heritable variation and differential reproductive success
- **B** No variation in the population
- **C** Identical environments forever
- **D** No predators or disease

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25

Adaptive radiation is best illustrated by

A one species splitting into many species adapted to different niches

B one species going extinct

C two species merging into one

D a species staying unchanged for millions of years

Understand It with Pulse

Flag a mistake

ANSWER KEY

1. C
2. D
3. A
4. B
5. C
6. D
7. A
8. B
9. C
10. D
11. 52
12. A
13. B
14. C
15. D
16. A
17. B
18. 100
19. 400
20. 450
21. 400
22. 100
23. C
24. A
25. A

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