Unit 04: Evolution of Populations

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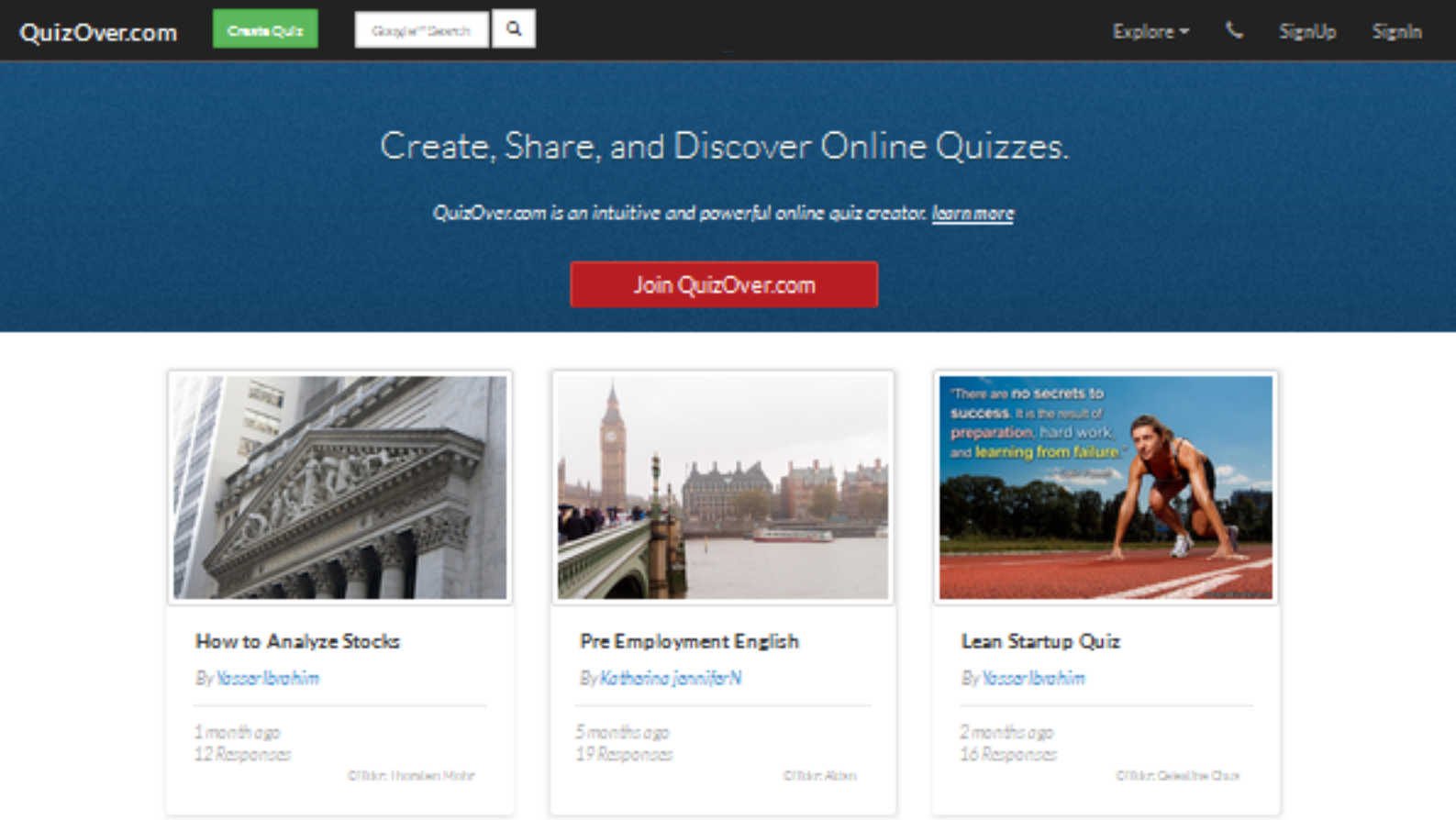

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4. Chapter: Unit 04: Evolution of Populations

1. Unit 04: Evolution of Populations Questions

4.1.1. A rancher has 3 distinct cow herds in which he keeps on separate la...

Author: Olivia D'Ambrogio

A rancher has 3 distinct cow herds in which he keeps on separate land, but after a particularly hard winter, he decides to combine 2 of the herds for spring breeding. This assumption in the Hardy-Weinberg principle most likely relates to which of the following?

Please choose only one answer:

- Mutation
- Gene flow
- Genetic drift
- Natural selection

4.1.2. Albinism is a rare genetic trait. The average human frequency of al...

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Albinism is a rare genetic trait. The average human frequency of albinism in North America is only about 1 in 20,000. Considering Hardy-Weinberg's equation $p^2 + 2pq + q^2 = 1$, what is the frequency of the normal allele?

Please choose only one answer:

- 80 in 100
- 90 in 100
- 99 in 100
- 1 in 140

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4.1.3. Complete the following statement. A population in Hardy-Weinberg eq...

Author: Olivia D'Ambrogio

Complete the following statement. A population in Hardy-Weinberg equilibrium:

Please choose only one answer:

- shows significant change in the frequency of dominant alleles.
- shows significant change in the frequency of recessive alleles.
- shows no change in the gene pool.
- shows significant change in the gene pool.

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4.1.4. Complete the following statement. For a population in Hardy-Weinber...

Author: Olivia D'Ambrogio

Complete the following statement. For a population in Hardy-Weinberg equilibrium:

Please choose only one answer:

- alleles of the genes that have no current selective value will be retained.
- recessive alleles will tend to disappear.
- the population, over time will become homozygous for dominant alleles.
- the frequency of homozygous individuals will increase.

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4.1.5. Female elk tend to choose males that have large body size and large...

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Female elk tend to choose males that have large body size and large antlers with many points. Which assumption of the Hardy-Weinberg equilibrium is primarily being violated in these populations?

Please choose only one answer:

- Mutation
- Gene flow
- Non-random mating
- Natural selection

4.1.6. Hardy-Weinberg equilibrium assumptions do not account for which of ...

Author: Olivia D'Ambrogio

Hardy-Weinberg equilibrium assumptions do not account for which of the following that has likely played a very major role in evolution?

Please choose only one answer:

- Natural selection
- Non-random mating
- Gene duplication
- Genetic drift

4.1.7. In real populations, disturbing influences are always in effect. Th...

Author: Olivia D'Ambrogio

In real populations, disturbing influences are always in effect. Therefore, what is the main function and purpose of the Hardy-Weinberg equation?

Please choose only one answer:

- It provides an ideal state baseline against which change can be analyzed.
- It provides an accurate data set snapshot of the current population's gene frequencies.
- It provides an accurate prediction for future populations' genetic frequencies.
- It identifies sex-linked traits.

4.1.8. In the Hardy-Weinberg equation $(p + q)^2 = p^2 + 2pq + q^2$, what does ...

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In the Hardy-Weinberg equation $(p + q)^2 = p^2 + 2pq + q^2$, what does 2pq represent?

Please choose only one answer:

- The fraction of the population who are homozygous for p
- The number of the population who are heterozygous for p
- The fraction of the population who are homozygous for q
- The fraction of the population who are heterozygotes

4.1.9. In the Hardy-Weinberg equation $(p + q)^2 = p^2 + 2pq + q^2$, what does ...

Author: Olivia D'Ambrogio

In the Hardy-Weinberg equation $(p + q)^2 = p^2 + 2pq + q^2$, what does p^2 represent?

Please choose only one answer:

- The fraction of the population who are homozygous for p
- The number of the population who are heterozygous for p
- The fraction of the population who are homozygous for q
- The fraction of the population who are heterozygotes

4.1.10. It was hypothesized that approximately 10,000 years ago the African...

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It was hypothesized that approximately 10,000 years ago the African cheetah went through a remarkable decline in population, necessitating a high occurrence of interbreeding, which caused a genetic bottleneck and resulted in near genetic uniformity at many different loci. Which violation of the Hardy Weinberg equilibrium occurred in these animals?

Please choose only one answer:

- Mutation
- Gene flow
- Genetic drift
- Natural selection

4.1.11. Use the Hardy-Weinberg equation. If the fraction of the population ...

Author: Olivia D'Ambrogio

Use the Hardy-Weinberg equation. If the fraction of the population who are homozygous for p is 0.16, then what are the allele frequency (q) and the genotypic frequency (q^2)?

Please choose only one answer:

- 0.4 and 0.16
- 0.6 and 0.36
- 0.84 and 0.71
- 0.36 and 0.6

4.1.12. Use the Hardy-Weinberg equation. If the fraction of the population ...

Author: Olivia D'Ambrogio

Use the Hardy-Weinberg equation. If the fraction of the population who are homozygous for p is 0.16, what is the fraction of the population who are heterozygotes?

Please choose only one answer:

- 0.48
- 0.16
- 0.4
- 0.6

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4.1.13. Which of the following best describes the main assumption of the Ha...

Author: Olivia D'Ambrogio

Which of the following best describes the main assumption of the Hardy-Weinberg equilibrium equation?

Please choose only one answer:

- The Hardy-Weinberg equilibrium equation assumes no mutations.
- The Hardy-Weinberg equilibrium equation assumes no disturbing influences are in effect on a species.
- The Hardy-Weinberg equilibrium equation assumes no gene flow.
- All of the above

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4.1.14. Which of the following statements about the Hardy Weinberg equation...

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Which of the following statements about the Hardy Weinberg equation: $p^2 + 2pq + q^2 = 1$ is true?

Please choose only one answer:

- p represents the frequency of the recessive allele for a specific trait.
- q represents the dominant allele of a specific trait.
- The equation allows you to calculate the allele frequencies from the genotypic frequencies.
- The equation allows you to discover the genotype frequencies if you know the phenotype frequencies.

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4.1.15. Which statement best describes the Hardy-Weinberg principle?

Author: Olivia D'Ambrogio

Which statement best describes the Hardy-Weinberg principle?

Please choose only one answer:

- Migration between populations will make allele frequencies in the species more homogeneous.
- Species have static allele and genotype frequencies across populations.
- With no disturbing influences, populations have static allele and genotype frequencies across generations.
- Over time, populations will all converge on heterozygosity for all traits.

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