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Courses » Introduction to Evolutionary Dynamics Ask a Question Announcements Course Progress Unit 6 - Week 5 Course Week 5 Assessment outline The due date for submitting this assignment has passed. Due on 2017-08-30, 23:59 IS As per our records you have not submitted this assignment. How to access the portal? 1) What is the critical value of mutation rate (μ), above which localization of a population around **1** point a fitness peak may not happen? Week 1 O (L) Week 2 ○ O (L⁻¹) Week 3 O (log L) \bigcirc O (L²) Week 4 No, the answer is incorrect. Week 5 Score: 0 **Accepted Answers:** Lecture 21 : Modelling $O(L^{-1})$ Evolution on Fitness 2) What type of populations allow easier elimination of one of the genotypes purely by chance? 1 point Landscapes - 3 Clonal population Lecture 22 : Small populations Role of Randomness in Large populations Evolution Heterogeneous population Lecture 23 : No, the answer is incorrect. Genetic Drift in Score: 0 Evolution of Microbial **Accepted Answers:** Populations Small populations Lecture 24 : 3) What is the ultimate outcome of the marbles in a jar game? 1 point Dvnamics of a Moran Process One of the 2 types of marbles will eventually be eliminated. without Selection The game will continue indefinitely. The jar will become empty. Lecture 25 : Dynamics of a Equal number of marbles of the 2 types in the jar. Moran Process without No, the answer is incorrect. Selection Score: 0 O Quiz : Week 5 **Accepted Answers:** Assessment One of the 2 types of marbles will eventually be eliminated. O Week 5 4) What are the analogies between the marbles in a jar game and bacterial cell division? Tick all 1 point Assessment correct. Solutions Selecting any marble is equally likely is analogous to all individuals having the same fitness. Week 6 Picking a marble is analogous to death of an individual in the population. Week 7 Marbles do not change colour is analogous to not allowing mutations in the population.

Week 8

Introduction to Evolutionary Dynamics - - Unit 6 - Week 5

Sampling rule – the same individual can be selected for birth and death process is analogous to sampling with replacement.

No, the answer is incorrect.

Accepted Answers:

Score: 0

Sampling rule – the same individual can be selected for birth and death process is analogous to sampling with replacement.

Selecting any marble is equally likely is analogous to all individuals having the same fitness. Marbles do not change colour is analogous to not allowing mutations in the population.

5) In a Moran process, how can the distribution of population between two genotypes A and B **1** pc remain unaltered?

- When A is chosen for birth and B is chosen for death.
- When A is chosen for birth and death.
- When B is chosen for birth and death.
- When B is chosen for birth and A is chosen for death.

No, the answer is incorrect. Score: 0

Accepted Answers: When A is chosen for birth and death. When B is chosen for birth and death.

6) While a new mutant tries to establish itself, the probability $P_i \rightarrow i+1$ is equal to: **1** point

 $P_i \rightarrow i$ $P_i \rightarrow i-1$ $2P_i \rightarrow i-1$ $2P_i \rightarrow i+1$

No, the answer is incorrect. Score: 0

Accepted Answers:

 $P_i \rightarrow i-1$

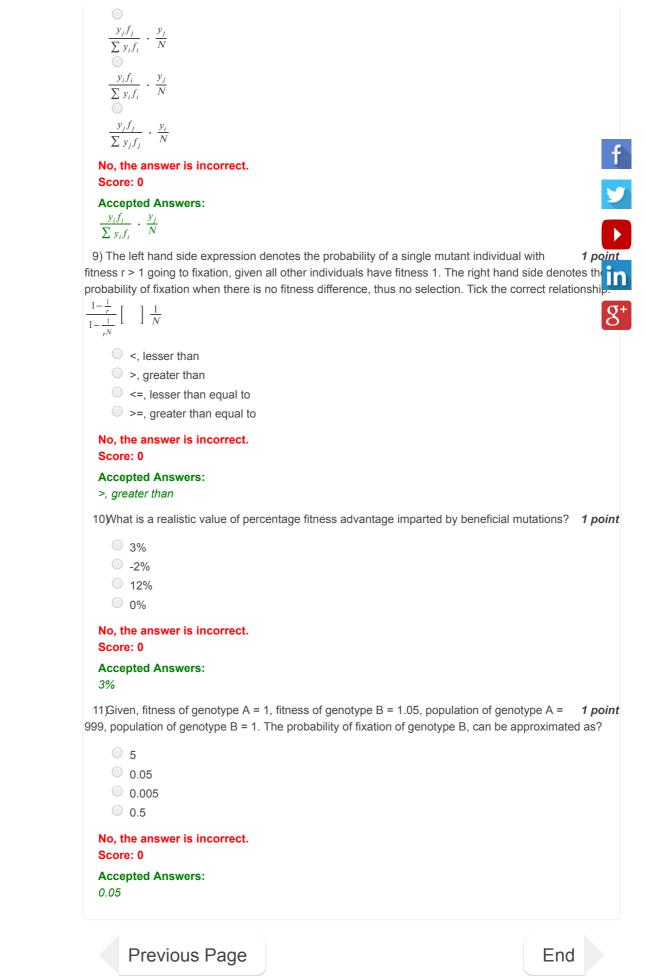
7) With no selective advantage present what is the probability of one individual replacing all **1** point other N-1 individuals in a population during a Moran process?

Because everyone is equally likely to survive and/or die $\frac{1}{2N}$ Because everyone is equally likely to survive and/or die $\frac{1}{N}$ Because everyone is equally likely to survive and/or die $\frac{1}{N^2}$ Because everyone is equally likely to survive and/or die No, the answer is incorrect. Score: 0 Accepted Answers: $\frac{1}{N}$ Because everyone is equally likely to survive and/or die

8) When different genotypes have different fitness, what is the mathematical expression for **1** point probability of choosing i-th for birth and j-th for death?



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