Courses » Introduction to Evolutionary Dynamics

Unit 9 - Week 8

Week 8 Assessment

The due date for submitting this assignment has passed. **Due on 2017-09-20, 23:59 IST**

As per our records you have not submitted this assignment.

1) Given the payoff matrix $P = \begin{bmatrix} a & b \\ c & d \end{bmatrix}$, it denotes the payoffs received by whom?

- The players or strategy or genotype denoted by each column
- The players or strategy or genotype denoted by each row and column
- None of the choices
- The players or strategy or genotype denoted by each row

No, the answer is incorrect.

Score: 0

Accepted Answers:

The players or strategy or genotype denoted by each row

2) Given the payoff matrix $P = \begin{bmatrix} a & b \\ c & d \end{bmatrix}$, and $X_A$ and $X_B$ the population fractions, calculate the fitness of the two species A and B.

- $f_A = bX_A + aX_B, f_B = dX_A + cX_B$
- $f_A = aX_A + bX_B, f_B = dX_A + cX_B$
- $f_A = cX_A + dX_B, f_B = aX_A + bX_B$
- $f_A = aX_A + bX_B, f_B = cX_A + dX_B$

No, the answer is incorrect.

Score: 0

Accepted Answers:

$f_A = aX_A + bX_B, f_B = cX_A + dX_B$

3) Given the payoff matrix $P = \begin{bmatrix} a & b \\ c & d \end{bmatrix}$, where $a > c$ and $b > d$. Tick all correct:

- A is wiped out of the population
- $\frac{dX_A}{dt} > 0$
- $\frac{dX_A}{dt} < 0$
- B is wiped out of the population

No, the answer is incorrect.

Score: 0

Accepted Answers:

$\frac{dX_A}{dt} > 0$

https://onlinecourses-archive.nptel.ac.in/noc17_ch08/unit?unit=48&assessment=64
26/07/2020

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No, the answer is incorrect.
Score: 0
Accepted Answers: 
\[ \frac{dX_i}{dt} > 0 \]
B is wiped out of the population

4) What describes the steady state of HIV infection? Tick all correct.

- Constant viral load
- Asymptomatic phase
- Constant immune response
- AIDS

No, the answer is incorrect.
Score: 0
Accepted Answers: 
Constant viral load
Constant immune response
Asymptomatic phase

5) What are the different outcomes associated with different values of parameters in the HIV infection model? Select the correct choice.

- Immediate disease
- Indefinite virus control
- Disease after asymptomatic period
- All the above

No, the answer is incorrect.
Score: 0
Accepted Answers: 
All the above

6) Which of the two strategies A and B are Nash equilibria in the Payoff matrix \( P = \begin{bmatrix} 1 & 4 \\ 2 & 3 \end{bmatrix} \)

- B
- Neither A nor B
- A
- A and B

No, the answer is incorrect.
Score: 0
Accepted Answers: 
Neither A nor B

7) The genome of HIV is approximately:

- 100 bases
- 10000 bases
- 100000 bases
- 1000 bases

No, the answer is incorrect.
Score: 0
Accepted Answers: 
10000 bases

8) The weak selection regime corresponds to:

- \( \omega = 0 \)
- \( \omega \rightarrow 0 \)
\[
\omega = 1 \\
\omega \rightarrow 1
\]

No, the answer is incorrect.  
Score: 0  
Accepted Answers:  
\[
\omega \rightarrow 0
\]

9) For \(\omega = 1\),  
- Fitness = payoff  
- Fitness = \(1/\text{payoff}\)  
- Fitness > payoff  
- Fitness < payoff

No, the answer is incorrect.  
Score: 0  
Accepted Answers:  
Fitness = payoff

10) Identify the Nash equilibrium in matrix \(P = \begin{bmatrix} 3 & 4 \\ 2 & 8 \end{bmatrix}\)  
- B only  
- Neither A nor B  
- A only  
- A and B

No, the answer is incorrect.  
Score: 0  
Accepted Answers:  
A and B