

# NTSE

NCERT Solutions for Class 10 Science  
BIOLOGY – Heredity and Evolution



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## NCERT ANNEXURE

Given below are Subjective type questions and Answers for your reference.

1. If a trait A exists in 10% of a population of an asexually reproducing species and a trait B exists in 60% of the same population, which trait is likely to have arisen earlier?

**Ans.** The trait B is likely to have arisen earlier. It is because the trait produced during successive generations get accumulated in the population of an organism.

2. How does the creation of variation in a species promote survival?

**Ans.** A number of different types of variations develop in a population. All of them do not have survival benefits. However, some of them are pre-adaptations which can be beneficial under certain environmental conditions. For example, in earthen-ware most of the bacteria will die but a few having pre-adaptation or variation to tolerate earthen-ware will survive and multiply. Actually selection of variants by different environmental factors constitutes the basis for evolution.

3. What are the different ways in which individuals with a particular trait may increase in a population?

**Ans.** The various ways in which individuals with a particular trait may increase in a population are –

(1) **Natural selection:** It is the process of evolution of a species whereby characters which help individual organisms to survive and reproduce, are better adapted in nature and help in the continuity of generation of that individual. The characters which are not selected by nature gradually decrease in frequency and create a threat for the survival of organisms.

(2) **Genetic drift:** Genetic drift is caused by drastic changes in the frequencies of particular genes by chance alone.

(3) **Food:** Individuals with particular traits may have extra abundance of food in their environment. They will naturally increase in number.

4. Why are traits acquired during the lifetime of an individual not inherited?

**Ans.** For a trait of an organism to be inherited, it should bring about a change in the genes (or DNA) present in the reproductive cells or gametes of that organism.

The traits acquired during the lifetime of a person do not bring about this type of change in the genes (or DNA) and hence they are not inherited by the offspring.

**Example -** Removal of tail cannot change the genes of the germ cells of the mice thus cannot be passed to next generation.

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5. Why is the small number of surviving tigers a cause of worry from the point of view of genetics?

Ans. Sometimes, when a species becomes extinct, its genes are lost forever. The small numbers of surviving tigers are a cause of worry from the point of view of genetics because they will interbreed in a small population and variation will be less. Due to less variation, ability to adapt will decrease and hence, their chance of existence will further decrease.

## NCERT EXEMPLAR

Given below are multiple choice questions and answers for your reference:

1. Exchange of genetic material takes place in

- (a) Vegetative reproduction (b) Asexual reproduction  
(c) Sexual reproduction (d) Budding

Ans: (C)

2. Two pink coloured flowers on crossing resulted in 1 red, 2 pink and 1 white flower progeny. The nature of the cross will be

- (a) Double fertilization  
(b) Self pollination  
(c) Cross fertilization  
(d) No fertilisation

Ans: (B)

3. A cross between a tall plant (TT) and short pea plant (tt) resulted in progeny that were all tall plants because

- (a) Tallness is the dominant trait  
(b) Shortness is the dominant trait  
(c) Tallness is the recessive trait  
(d) Height of pea plant is not governed by gene 'T' or 't'

Ans: (A)

4. Which of the following statements is incorrect?

- (a) For every hormone there is a gene.  
(b) For every protein there is a gene.  
(c) For production of every enzyme there is a gene.  
(d) For every molecule of fat there is a gene

Ans: (D)

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I still wonder how one man has such a deep understanding of an examination. It becomes the truth what ever Nipin Sir says about NTSE.

*M. Pareek*

An  
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5. If a round, green seeded pea plant ( $RR yy$ ) is crossed with wrinkled, yellow seeded pea plant, ( $rr YY$ ) the seeds produced in F1 generation are

(a) Round and yellow (b) Round and green (c) Wrinkled and green (d) Wrinkled and yellow

Ans: (A)

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