



# BIOLOGY

## NCERT - NCERT Biology(Tamil)

### BREEDING AND BIOTECHNOLOGY

**Textbook Evaluation Choose The Correct Answer**

1. Which method of crop improvement can be practised by a farmer if he is in experienced?

A. clonal selection

B. mass selection

C. pureline selection

D. hybridisation

**Answer:**



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2. Pusa komal is a disease resistant variety of \_\_\_\_\_

A. sugarcane

B. rice

C. cow pea

D. maize

**Answer:**



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3. Himagiri developed by hybridisation and selection for disease resistance against rust pathogens is a variety of \_\_\_\_

A. chilli

B. maize

C. sugarcane

D. wheat

**Answer:**



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**4.** The miracle rice which saved millions of lives and celebrated its 50th birthday is

A. IR 8

B. IR 24

C. Atomita 2

D. Ponni

**Answer:**



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5. Which of the following is used to produce products useful to humans by biotechnology techniques?

A. enzyme from organism

B. live organism

C. vitamins

D. both (a) and (b)

**Answer:**



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6. We can cut the DNA with the help of \_\_\_\_\_.

A. scissors

B. restriction endonucleases

C. knife

D. RNAase

**Answer:**



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7. rDNA is a \_\_

A. vector DNA

B. circular DNA

C. recombinant of vector DNA and desired  
DNA

D. satellite DNA

**Answer:**



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**8.** Dna fingerprinting is based on the principle  
of identifying \_\_\_ sequences of DNA

A. single stranded



B. mutated

C. polymorphic

D. repetitive

**Answer:**



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9. Organisms with modified endogenous gene of a foreign gene are also known as\_\_\_\_\_.

A. transgenic organisms

B. genetically modified

C. mutated

D. both a and b

**Answer:**



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**10.** In a hexaploid wheat ( $2n=6x=42$ ) the haploid ( $n$ ) and the basic ( $x$ ) number of chromosomes respectively are

A.  $n = 7$  and  $x = 21$

B.  $n = 21$  and  $x = 21$

C.  $n = 7$  and  $x = 7$

D.  $n = 21$  and  $x = 7$

**Answer:**



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**Textbook Evaluation Fill In The Blanks**

1. Economically important crop plants with superior quality are raised by \_\_\_\_\_



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2. A protein rich wheat variety is \_\_\_\_\_



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3. \_\_\_\_\_ is the chemical used for doubling the chromosomes.



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4. The scientific process which produces crop plant enriched with desirable nutrients is called\_\_\_\_\_.



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5. Rice normally grows well in alluvial soil, but \_\_\_\_\_ is a rice variety produced by mutation breeding that grows well in saline soil





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6. \_\_\_\_\_ technique made it possible to genetically engineered living organism.



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7. Restriction endonucleases cut the DNA molecule at specific positions known as \_\_\_\_\_.



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8. Similar DNA finger printing is obtained for



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9. .... cells are undifferentiated mass of cells.



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10. In gene cloning, the DNA of interest is integrated into a \_\_\_\_\_.



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## Textbook Evaluation State Whether True Or False If False Write The Correct Statement

1. Raphano brassica is a man-made tetraploid produced by colchicine treatment.



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2. The process of producing an organism with more than two sets of chromosome is called mutation.



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3. A group of plants produced from a single plant through vegetative or asexual reproduction are called a pureline.



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4. Iron fortified rice variety determines the protein quality to the cultivated plant.



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5. Golden rice is a hybrid.



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6. Bt gene from bacteria can kill insects.



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7. In vitro fertilisation means the fertilisation done inside the body.



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8. DNA fingerprinting technique was developed by Alec Jeffrey.



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9. Molecular scissors refers to DNA ligases.



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**Textbook Evaluation Understand The Assertion Statement Justify The Reason Given And Choose The Correct Choice**

1. Assertion: Hybrid is superior than either of its parents.

Reason: hybrid vigour is lost inbreeding.

A. Assertion is correct and reason is wrong

B. Reason is correct and the assertion is wrong

C. Both assertion and reason is correct

D. Both assertion and reason is wrong.

**Answer:**



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2. Assertion: Colchicine reduces the chromosome number.

Reason: It promotes the movement of sister chromatids to the opposite poles.

A. Assertion is correct and reason is wrong

B. Reason is correct and the assertion is wrong

C. Both assertion and reason are correct

D. Both assertion and reason is wrong.

**Answer:**



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**3. Assertion(A):** rDNA is superior over hybridisation techniques.

**Reason(R):** Desired genes are inserted without introducing the undesirable genes in target organisms.

A. Assertion is correct and reason is wrong

B. Reason is correct and the assertion is wrong

C. Both assertion and reason is correct

D. Both assertion and reason is wrong.

**Answer:**



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**Textbook Evaluation Answer In A Sentence**

1. Give the name of wheat variety having higher dietary fibre and protein.



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2. Semi-dwarf varieties were introduced in rice. This was made possible by the presence of dwarfing gene in rice. Name this dwarfing gene.



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3. Define Genetic engineering.



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4. Name the types of stem cells.



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5. What are transgenic organisms?



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**6.** State the importance of biofertilizer.



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## **Textbook Evaluation Short Answers Questions**

**1.** Discuss the method of breeding for disease resistance.



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2. Name three improved characteristics of wheat that helped India to achieve high productivity.



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3. Name two maize hybrids rich in amino acid lysine.



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4. Differentiate between Somatic cell gene therapy and Germline gene therapy.



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5. Distinguish between undifferentiated cells and differentiated cells.



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6. (a) State the applications of DNA finger printing technique.

(b) Describe the structure of spinal cord.



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7. How are stem cells useful in regenerative process ?



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8. Differentiate between outbreeding and inbreeding.



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## Textbook Evaluation Long Answers Questions

1. What are the effects of hybrid vigour in animals?



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2. Describe mutation breeding with an example.



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3. Biofortification may help in removing hidden hunger .How?



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4. With a neat labelled diagram explain the techniques involved in gene cloning.



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5. Discuss the importance of biotechnology in the field of medicine.



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1. A breeder wishes to incorporate desirable characters into the crop plants. Prepare a list of characters he will incorporate.



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2. Organic farming is better than green Revolution. Give reasons



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3. Polyoloidy are characterised by gigantism  
justify your answer.



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4. P' is a gene required for the synthesis of vitamin A. It is intergrated with gemone of 'Q' to produce genetically modified plant 'R'

(i) What is P, Q and R? .

(ii) state the importance of 'R' in India.



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