

BIOLOGY

BOOKS - SURA BIOLOGY (TAMIL ENGLISH)

BREEDING AND BIOTECHNOLOGY

Text 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: A::C



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2. Pusa komal is a disease resistant variety of

- A. sugarcane
- B. rice
- C. cow pea
- D. maize

Answer: A::C



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3. Himagiri developed by hybridisation and selection for disease resistance against rut pathogens is a variety of ____

- A. Chilli
- B. maize
- C. sugarcane
- D. Wheat

Answer: A



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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?

B. live organism
C. vitamins
D. Both (a) and (b)
Answer: A::B::D
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6. We can cut the DNA with the help of
A. Scissors

A. Enzyme from organism

- B. Restriction endonucleases
- C. knife
- D. RNAase

Answer: A::C::D



- **7.** rDNA is a__
 - A. ventor DNA
 - B. circular DNA

C. recombinant of vector DNA and desired

DNA

D. Satellite DNA

Answer: A::B::C::D



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8. Dna fingerprinting is based on the principle of ifentifying sequences of DNA

A. Single stranded

B. mutated
C. polymorphic
D. repetitive
Answer:
Watch Video Solution

9. Organisms with modified endogenous gene of a foreign gene are also known as____.

A. Trangenis organism

- B. geneticaally modified
- C. mutated
- D. both a and b

Answer: A::B::D



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10. In a hexaploid wheat (2n=6 x=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: D



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Text 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
Watch Video Solution
3 is the chemical used for doubling the

chromosomes.

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



5. Rice normally grows well in alluvial soil,but____ia a rice variey produced by mutation breeding that grow well in saline soil





6. ____ technique made it possible to genetically engineered living organism.



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



8. Similar DNA finger printing is obtained for



- 9. Fill in the blanks:
- (i) _____ is the chemical used for doubling the chromosomes.
- (ii) ____ cells are undifferentiated mass of cell.



10. In gene cloning, the DNA of intrest is intergrated is a .



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Text Evaluation State Whether True Or False If False Write Correct Statement

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



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.



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



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5. Golden rice is a hybrid.



Watch Video Solution

6. Bt gene from bacteria can kill insects.



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



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8. DNA fingerprinting technique was developed by Alec Jeffrey.



9. Molecular scissors refers to DNA ligases.



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Text Evaluation Match The Following

1.



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Text Evaluation Understand The Assertion Statement Justify The Reason Given And Choose

The Correctchoice

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 movment 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 is 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. Both assertion and reason are true and reason is correct explanation of assertion .

B. Both assertion and reason are true but reason is not the correct explantion of assertion .

C. Assertion is true but reason is false

D. Both assertion and reason are false

Answer: A



Text 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

dwarrfing 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.



5. What are transgenic organisms?



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6. State the importance of biofertilizer.



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Text Evaluation Short Answer 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.



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



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4. Distinguish between

(a)Somatic gene therapy and germ line gene therapy.

(b)Undifferentiated cells and differentiated cells.



5. State the application of DNA finger printing technique.



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6. How are stem cells useful in regenerative process?



7. Differentiate between outbreeding and inbreeding.



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Text Evaluation Ong Answer Questions

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



2. Describe mutation breeding with an example.



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



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



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



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Text Evaluation Higher Order Thinking Skills Hots

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



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



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.



Additional Question Answer

1. Dr.Norman was an _____agronomist.

A. American

B. Asian

C. Russian

D. British

Answer: A::C



2. Dr.Norman received the Nobel peace prize in

A. 1960

B. 1980

C. 1956

D. 1970

Answer: A



3.	The	Inrenational	rice	research	institute	is
lo	catd	at				

- A. New delhi
- B. Mexico
- C. Philipines
- D. China

Answer:



4. The rice variety peta was from	
A. China	
B. Mexico	
C. Indonesia	
D. India	
Answer: A::D	
Watch Video Solution	
5. Dr.M.S Swaminathan did experiments in	

A. Rice
B. cotton
C. flax
D. Linseed
Answer: C Watch Video Solution
6. Pusa snowball is a disease resistant variety of

A. Cowpea
B. Cauliflower
C. Wheat
D. Rice
Answer: A::C Watch Video Solution
watch video Solution
7. Pusa sawani is a insect resistant variety of

B. Flat bean		
C. Lady's finger		
D. Brassica		
Answer: A::D		
Watch Video Solution		
8is an example of auto triploid		
A. Coffee		

A. Cowpea

- B. Banana
- C. Potato
- D. Peanut

Answer: B



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9. Blood clotting factors produced by biotechnology helps patients suffering from____

- A. Haemophilia
- **B.** Homeostsis
- C. Cerebral palsy
- D. CHD

Answer: A



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10. In human beings,____ of the DNA base sequences are the same and this is called as bulk genomic DNA.

A. 0.99		
B. 0.5		
C. 0.9		
D. 0.7		
Answer: Watch Video Solution		
11. The human genome hasbase pairs.		
A. 3 billion		

- B. 3 million
- C. 30million
- D. 30 billion

Answer: B::C



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12. DNA fingerprinting was developed by

----·

A. Dr.lan Wilmut

B. Alec jeffrey C. Lilly D. Dr.Norman Answer: A::C **Watch Video Solution 13.** is father of "Indian Green Revolution" A. Dr.M.S. Swaminathan B. Dr.Norman

- C. Alec jeffrey
- D. Dr.Lan Wilmut

Answer: A::D



- **14.** Hybrid of wheat and rye.
 - A. Triticale
 - B. Raphano brassica
 - C. bananas

D. Water melons

Answer: A::C



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15. An organism possessing more than two basic sets of chromosomes ____

A. Diploid

B. Haploid

C. Monoploid

D. Polyploid

Answer: D



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Additional Question Answer Fill In The Blanks

1. ____ is the Father Green revolution.



2. IR-8 is also called				
Watch Video Solution				
3. Green revolutionin india was brought about by				
Watch Video Solution				
4. Kalyan sona is a variety of				
Watch Video Solution				

5. Who produced Raphano brassica		
Watch Video Solution		
6. TV-29 is avariety of tea.		
Watch Video Solution		
7. Hybrid of wheat and rye.		
Watch Video Solution		

8. _____is an example of a chemical mutagen.



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9. Sharbati sonora is a mutant got by using____



10. is a rice variety with saline tolerance and pest resistance. Watch Video Solution **11.** Atomic garden is also known as _____. Watch Video Solution



12. is the first man made cereal.

13. Karan Swiss is a cross breed of cow got by crossing brown swiss and _____



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14. Hissardale is a breed of sheep developed by



15. Hybrid vigour is also called				
Watch Video Solution				
16. Hybrid DNA got by genetic engineering is				
called				
Watch Video Solution				
17. The extra chromosomal DNA present in a				
bacteria is called				



18. Restriction enzyme cleaves the _____ bond in DNA.



19. A genetically exact copy of an organism is called



20. Dolly was the first cloned female sheep				
·				
Watch Video Solution				
21. Plasmid acts as ain recombinant DNA technology.				
Watch Video Solution				
22. Golden rice can produce				

Watch Video Solution

23. ____gene from bacillus thutingiensis produce a protein that is toxic to insects.



24. For improved wool quality ,transgenic sheep are produced by inserting gene for synthesis of



25. _____ are undifferentiated mass of cells with variable potency.



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26. _____ is the art of developing economically important plants with superior quality.



27. The aim of ____ improvement is to develop improved crop varieties.



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28. _____ introduced Mexican wheat varieties in india.



29. _____, are semi-dwarf varieties of wheat.



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30. ____ is a high-yielding semi-dwarf rice variety.



31. The scientific process which produces crop plant enriched with desirable nutrients is called_____.



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32. Protina, shakti and Rathna are -___ rich maize hybrids.



33. ____Enriched carrots.pumpkin and spinach are results of biofortification.



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34. ____ is one of the oldest methods of plants breeding.



35. Groundunt varieties,the TMV-2 and AK-10 are example of ____ selection.



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36. ____ is the progeny of a single individual obtained by self breeding.



37. _____ is also called as individual plant selection.



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38. A group of plants produced from a single plant through vegetative or sexual reproduction is called



39. All the plants of a clone are similar both in___ and ___.



40. The ____ cells have only one set of chromosome.



41. An organism with more than two sets of chromosomes.



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42. Seedless watermelons (3n) and bananas

(3n)Are got as a result of _____



43. Raphano brassica is an allotetraploid got by _____treatment.



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44. Sudden heritable change in the nucleotide sequence of DNA.



45. The factors which induce mutations are known as _____.

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46. what are saline tolerant plants called



47. _____ is a rice variety with saline tolerance



48. Groundnut with thick shells are produced by _____



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49. ___ is the common method of creating genetic variation to get improved varieties.



50. Group of animals of common origin within a species.



Watch Video Solution

51. _____ involves mating parents of different varieties to get improved varieties.



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52. α, β and γ -ray are___mutagens.



53. _____gas is an example of a chemical mutagen.



54. ____ is the first man made cereal.



55. in bacteria can undergo replication independently along with chromosomal DNA.



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56. cut or break DNA at specific sites.



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57. are the enzymes which help in ligating the broken DNA fragments.



58. The carbon copy of an individuals is called a



59. The transfer of DNA into bacterial host cell is called.____



60. are also called as molecular scissors.
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61. was created by somatic cell transfer technique.
Watch Video Solution
62. Insulin used in the treatment of diabetes is
developed by technique.

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63. Tissue plasminogen activator is used to dissolve____ to prevent heart attack.



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64. gene therapy is the replacement of defective gene is somatic cells.



65. gene therapy involves replacements
of defective in germ cell.
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66. The stem cells are the cells of variable Watch Video Solution
67. The genetic difference among two individuals can be compared using
Watch Video Solution

68. DNA fingerprinting was developed by _____.



69. _____stem cells can be extracted and cultured from a early embryo.



70. ____Stem cells are derived from the inner cell mass of blastocyst.



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71. The 1% of DNA sequence is present as small stretch of repeated sequence is known as_____



72. DNA fingerprinting technique is widely used in ___applications.



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73. Plant or animals expressing a modified endogenous gene are known as_____
organisms.



74. Science dealing with breeding of animals
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75. is an exotic plant introduced from china.
Watch Video Solution
76. Dr.M.S Swaminathan is called as the father
of



77. ____ is a high yielding rice variety from Indonesia.



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78. Dee-geo-voo-gen a dwarf variety rice from____.

A. China

B. India

- C. Thailand
- D. Indonesia

Answer: A



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79. ____ was a tamil agricultural scientist.



80. ____ is the mating of closely related animals within the same breed.

- A. out-crossing
- B. cross-breeding
- C. interspecific hybridization
- D. in-breeding

Answer: D



81. Hissardale is a breed of sheep developed
by
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82. Continued inbreeding reduces and
*
Watch Video Solution
83. The superiority of the hybrid obtained by
cross breeding is called as



84. ____ is also called as recombinant DNA technology.



85. _____ recognises a specific base pair sequence in DNA called as restriction site.



Additional Question Answer State Whether The Following Statements Are True Or False

1. IR-8 is a rice variety developed by Indian AgricultURAL Reasearch Institute.



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2. In india Dr.M.S Swaminathan introduced Mexican wheat varieties.



3. Phaseoulus mungo is a exotic species introduced from Mexico.



4. Colchicine is a mutagenic agent



5. Triticale is got by hybridization



6. Sharbati Sonora is a variety of wheat got by gene cloning.



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7. Continued inbreeding produces stronger individuals



8. In human beings 1% of DNA sequences differs from one individual to another.



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9. VNTR are similar in all human beings



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10. Transgentic fish with increased growth have been produced to increase commercial

valve



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Additional Question Answer Assertion And Reason

1. Assertion:The progeny of pureline varieties are similar in genotype and phenotype.

Reason: They are raised by self fertilization .

A. Both Assertion and Reason are true and

Reason is correct explanation of

Assertion.

B. Both Assertion and Reason are true but

Reason is not the correct explanation of

Assertion

C. Assertion is true but Reason is false

D. Both Assertion and Reason are false.

Answer:



2. Assertion:Continued outbreeding reduces fertility and productivity.

Reason:It help to elimate useful genes

A. Both Assertion and Reason are true and

Reason is correct explanation of

Assertion.

B. Both Assertion and Reason are true but

Reason is not the correct explanation of

Assertion

C. Assertion is true but Reason is false

D. Both Assertion and Reason are false.

Answer: C



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3. Assertion(A):Hybridization is the common method of creating genetic variation.

Reason (R):Triticale is the first man made cereal hybrid.

A. Both Assertion and Reason are true and

Reason is correct explanation of

Assertion.

B. Both Assertion and Reason are true but

Reason is not the correct explanation of

Assertion

C. Assertion is true but Reason is false

D. Both Assertion and Reason are false.

Answer:



4. Assertion (A):The organism which undergoes mutation is called a mutant.

Reason (R): It is a common method of creating genetic variation, Which brings about changes in the organism.

A. Both Assertion and Reason are true and

Reason is not correct explanation of

Assertion.

B. Both Assertion and Reason are true but

Reason is the correct explanation of

Assertion

C. Assertion is true but Reason is false

D. Both Assertion and Reason are false.

Answer: B



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Additional Question Answer Analogy Type Questions Identify The First Word And Their

Relationship And Suggest A Suitable Word For The Fouth Blank

1. DNA finger :Alec Jeffrey:: Green revolution:



2. Protina:Lysine :: Atlas 66:____



3. Cauliflower :Black rot: Cowpea:
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4. Physical mutagens :X-rays:: Chemical
4. Thysical matagens .x rays Chemical
mutagens:
Watch Video Solution
5. Differentiated cells:Heart cells
::Undifferentiated cells:



Additional Question Answer Answer In One Word

1. Science dealing with breeding of animals



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2. Initiative taken to increase food production through modern agricultural techniques.



3. _____ is the Father Green revolution.



4. _____ is father of "Indian Green Revolution"



5. ANorther name for miracle rice.



6. name the chinese Dwarf Rice variety.



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7. ____ is a high yielding rice variety from Indonesia.



Watch Video Solution

8. Disease resistant variety of wheat.



9. Disease resistant variety of Cowpea.



Watch Video Solution

10. Disease resistant variety of cauliflower.



Watch Video Solution

11. Insect resistant variety of Brassica.

12. The scientific process which produces crop plant enriched with desirable nutrients is called _____.



13. Plants introduced from other places.



14. Selection of best plants from a mixed population to raise the next generation.



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15. is the progeny of a single individual obtained by self breeding.



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16. A group of plants produced from a single plant through vegetative or sexual

reproduction is called **Watch Video Solution** 17. An organism with more than two sets of chromosomes. **Watch Video Solution 18.** Name some insect pests that affect plants. **Watch Video Solution**

19. Hybrid of wheat and rye.



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20. Sudden heritable change in the nucleotide sequence of DNA.



Watch Video Solution

21. Factors which induce mutatiom.



22. An organism which undergoes mutation



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23. Crop improvement brought about by induced mutations.



24. Process of crossing two or more types of plants



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25. Give an example of allotetraploid.



Watch Video Solution

26. Diseases treated by stem cell therapy.



27. Technique by which mule was produced



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28. Group of animals of common origin within a species.



Watch Video Solution

29. Mating of closely related animals.



30. Breeding of unrelated animals



Watch Video Solution

31. Superiority of hybrid over the parents.



32. Manipulation of genes leads to productivity of new DNA.



33. ____ are also called as molecular scissors.



34. The enzyme used to join the DNA fragments is



35. Techinique used in creating Dolly.



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36. Vector used in rDNA technology.



37. process of transfer of rDNA into bacterial host cell.



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38. Replacement of defective genes by transfer of functional genes.



39. Mass of undifferentiated cells with variable potency in animals are known as



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40. Another name for adult stem cell.



Watch Video Solution

41. Technique based on similarity in DNA base pairs and genetic differences mong

individuals. Watch Video Solution **42.** Expand the abbereviations of "VNTRs" ? **Watch Video Solution** 43. Plant or animals expressing a modified endogenous gene are known as__ organisms.

44. Gentically modified rice which can prevent vitamin A deficiency.



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45. Type of gene intriduced in Tilapia (Transgenic fish)



46. Scientist who developed Dolly.



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Additional Question Answer Answer In A Sentance

1. Define plant breeding.



2. Define a Pureline.



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3. What is a Clone?



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4. What is a polyploid?



5. Give an account on colchicine.

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6. What are Mutagens?



7. Define hybrid vigour.



8. What are DNA ligases?



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9. What are restriction enzymes or molecular scissors?



Watch Video Solution

10. Name the types of gene therapy.



11. Name the types of stem cells.



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Additional Question Answer Give Reasons For The Following Statements

1. Why are Lysine maize hybrids by biofortification?



2. why It is important to develop disease resistant varieties of crops.



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3. DNA fingerprinting is used for patenity testing.



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Additional Question Answer Very Short Answers

1. What is Green Revolution?



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2. Define inbreeding.



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3. What is gene therapy? Mention the types.



4. What is a mule?



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5. What is a plasmid?



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6. Define mutation.



7. Name the methods of selection.



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8. Mention two characteristics of stem cells.



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9. What is Inbreeding depression?



10. What is rDNA?



Watch Video Solution

11. What are the applications of stem cell therapy?



Watch Video Solution

12. Define Genetic engineering.



13. Name the methods of plant breeding to develop high yielding varieties or crop improvement.



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14. Differentiate embryonic stem cells and adult stem cells.



Additional Question Answer Short Answers

1. How was IR-8 variet produced?



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2. List the objective of animals breeding?



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3. What fo you known about Green revolution?

Additional Question Answer Long Answers

1. Write a note on selection.



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2. Write a note on Triticale.



3. Explain polyploid breeding.



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4. Write a not an DNA fingerprinting.



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5. Why are genetically modified organisms produced ?Explain the purpose and advantages.



Additional Question Answer Higher Order Thinking Skills Hots

1. Mention any situation where you have gone for DNA fingerprinting?



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Additional Question Answer Value Based Questions

1. Plants seeds got from other countries are tested in plant quarantine. Reason out.



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2. A farmer has lot of banana trees in his farm. He wishes to go in for selection to improve the crop. Which method can be adopted in banana?



Additional Question Answer Expand The **Following Abbreviations**

1. Expand the abbereviation of "DNA"?



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2. Expand the abbereviation of "DGWG"?



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3. Expand the abbereviations of "IRRI"?



4. Expand the abbereviations of "UV"?



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5. Expand the abbereviations of "rDNA"?



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6. Expand the abbereviations of "VNTRs"?



7. Expand the abbereviations of "GMOs"?

