



BIOLOGY

BOOKS - FULL MARKS BIOLOGY (TAMIL ENGLISH)

HEREDITY

Textual Evaluation Solved Choose The Correct Answer

1. According to Mendel, alleles have the following character

- A. Pair of genes
- B. Responsible for character
- C. Production of gametes
- D. Recessive factors

Answer: A



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2. 9:3:3:1 ratio is due to _____

- A. Segregation
- B. Crossing over
- C. Independent assortment
- D. Recessiveness

Answer: C



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3. The region of the chromosome where the spindle fibre get attached during cell division.

- A. Chromomere

- B. Centrosome
- C. Centromere
- D. Chromonema

Answer: C



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4. The centromere is found at the centre of the _____ chromosome.

- A. Telocentric
- B. Metacentric
- C. Sub-metacentric
- D. Acrocentric

Answer: B



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5. The _____ units form the backbone of the DNA.

- A. 5 carbon sugar
- B. Phosphate
- C. Nitrogenous bases
- D. Sugar phosphate

Answer: C



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6. Okazaki fragments are joined together by _____.

- A. Helicase
- B. DNA polymerase
- C. RNA primer
- D. DNA ligase

Answer: D



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7. The number of chromosomes found in human beings are _____

- A. 22 pairs of autosomes and 1 pair of allosomes
- B. 22 autosomes and 1 allosome
- C. 46 autosomes
- D. 46 pairsof autosomes and 1 pair of allosomes

Answer: A



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8. The loss of one more chromosome in a ploidy is called _____.

- A. Tetraploidy

B. Aneuploidy

C. Euploidy

D. Polyploidy

Answer: B



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Textual Evaluation Solved Fill In The Blanks

1. Fill in the blanks:

(i) The pairs of contrasting character (traits) of Mendel are called ____.

(ii) DNA consists of two ____ chains.



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2. Physical expression of a gene is called _____



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3. The thin thread like structures found in the nucleus of each cell are called _____



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4. DNA consists of two _____ chains



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5. An inheritable change in the amount or the structure of a chromosome is called



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1. A typical Mendelian dihybrid ratio of F_2 generation is 3:1



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2. A recessive factor is altered by the presence of a dominant factor.



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3. Each gamete has only one allele of a gene.



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4. Hybrid is an offspring from a cross between genetically different parent.



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5. Some of the chromosomes have an elongated knob-like appendage known as telomere.



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6. New nucleotides are added and new complimentary strand of DNA is formed with the help of enzyme DNA polymerase.



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7. Down's syndrome is the genetic condition with 45 chromosomes.



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Textual Evaluation Solved Match The Following

	Column A		Column B
	1. Autosomes	(a)	Trisomy 21
	2. Diploid condition	(b)	9:3:3:1
1.	3. Allosome	(c)	22 pair of chromosome
	4. Down's syndrome	(d)	2n
	5. Dihybrid ratio	(e)	23 rd pair of chromosome



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Textual Evaluation Solved Answer In A Sentence

1. What is a cross in which inheritance of two pairs of contrasting characters are studied?



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2. Name the conditions when both the alleles are identical.



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3. A garden pea plant produced axial white flowers. Another of the same species produced terminal violet flowers. Identify the dominant traits.



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4. What is the name given to the segments of DNA, which are responsible for the inheritance of a particular character?



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5. Name the bond which binds the nucleotides in a DNA



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1. Why did Mendel select pea plant for this experiments?



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2. What do you understand by the term phenotype and genotype?



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3. What are allosomes?



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4. What are Okazaki fragments?



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5. Why is euploidy considered to be advantageous to both plants and animals?



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6. A pure tall plant (TT) is crossed with pure dwarf plant (tt). What would be the F_1 and F_2 generations? Explain.



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7. (i) What are allosomes?

(ii) Explain the structure of a chromosome.



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8. Label the parts of the DNA in the diagram given below. Explain the structure briefly. Structure of DNA:



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Textual Evaluation Solved Long Answer Questions

1. Explain with an example the inheritance of dihybrid cross. How is it different from monohybrid cross?



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2. How is the structure of DNA organized? What is the biological significance of DNA?



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3. The sex of the new born child is a matter of chance and neither of the parents may be considered responsible for it. What would be the possible fusion of gametes to determine the sex of the child?



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Textual Evaluation Solved Hots

1. Flowers of the garden pea are bisexual and self-pollinated .Therefore ,it iks difficult to perform hybridization experiment by crossing a particular pistil with the specific pollen grains.How Mendek made it possible in his monohybrid and dihybrid crosses?



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2. Pure-bred tall pea plants are first crossed with pure-bred dwarf pea plants. The pea plants obtained in F_1 generation are then cross-bred to produce F_2 generation of pea plants.

(a) What do the plants of F_1 generation look like?

(b) What is the ratio of tall plants to dwarf plants in F_2 generation?

(c) Which type of plants were missing in F_1 generation but reappeared in F_2 generation?



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3. Kavitha gave birth to a female baby. Her family members say that she can give birth to only female babies because of her family history. Is the statement given by her family members true. Justify your answer.



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Textual Evaluation Solved Value Based Questions

1. Under which conditions does the law of independent assortment hold good and why?



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Additional Questions Fill In The Blanks

1. The branch of biology that deals with the genes, genetic variation and heredity of living organisms is called.....



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2. The chromatids are held together by.....



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3.is the enzyme, which separates the double helix of DNA, above the replication fork.



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4.mutation is the changes occurring in nucleotide sequence of a gene.



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5. The end of a chromosome is called_____



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6. The constriction of chromosome at any point is called.....



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7. The nucleotides in a helix are joined together by.....bonds.



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Additional Questions Match The Following

1.

- | | | |
|------------------|---|--|
| 1. Homozygous | — | (a) polynucleotide |
| 2. Genes | — | (b) human male |
| 3. DNA | — | (c) occurs in pairs and alike |
| 4. Heterozygous | — | (d) segments of DNA |
| 5. Heterogametic | — | (e) bind DNA to the origin of replication site |
| 6. Autosome | — | (f) occurs in pairs and unlike |
| 7. Helicase | — | (g) somatic characters |



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Additional Questions Choose The Correct Answer

1. The thin long thread like structures consisting of two identical strands.....

A. Hybrid

B. Chromosomes

C. Genes

D. DNA and RNA

Answer: B



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2. In human, the number of chromosomes in each cell is.....

A. 22 pairs

B. 21 pairs

C. 23 pairs

D. 20 pairs

Answer: C



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3. _____ is the number ,size and shape of chromosomes in the cell nucleus of an organism.

- A. Karyotype
- B. Heterozygous
- C. Autosome
- D. Nucleotide

Answer: A



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4. In the new complementary strand of DNA, in one strand, the daughter strand is synthesized, as a continuous strand called.....

- A. Lagging strand
- B. Parent strand

C. RNA primer

D. Leading strand

Answer: D



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5. The addition or deletion in the number of chromosomes present in a cell is called _____

A. Homogametic

B. Polymerase

C. Ploidy

D. Nucleoside

Answer: C



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Additional Questions True False

1. The character which expresses itself is called dominant condition and that which is masked is called recessive condition.



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2. The chromosomes of body cells of organism is haploid in condition and the single set of chromosomes in gametes are diploid in condition.



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3. The mother is responsible in determining the sex of the child. The sperm produced by the father does not determine the sex of the child.



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4. The human female are called Homogametic. The human males are called heterogametic.



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5. Adenine always links with Guanine with three hydrogen bonds and cytosine always links with thymine with two hydrogen bonds.



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Additional Questions Match

1.

- | | |
|---------------------------|--------------------------------------|
| 1. Waldeyar | — (a) Role of chromosome in heredity |
| 2. James Watson and Crick | — (b) Father of genetics |
| 3. Hugo de vries | — (c) Down's syndrome |
| 4. Langdon Down | — (d) Chromosomes |
| 5. T.H Morgan | — (e) Mutation |
| 6. Gregor Johan Mendel | — (f) Model of DNA |



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Additional Questions Answer The Following

1. _____ is the father of Genetics.



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2. What are alleles ?



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3. What is locus?



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4. What is Terminus?



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5. What is a dihybrid cross ?



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6. What are satellite?



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7. What is Nucleoside and Nucleotide?



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Additional Questions Answer The Following Briefly

1. What are chromosomes made up of?



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2. What are chromonema and chromomeres?



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3. Explain the types of chromosome, based on position of centromere.



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4. Explain the types of chromosome based on function



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5. What is sickle cell anaemia?



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6. Represent the phenotypic, genotypic ratio of both monohybrid cross and dihybrid cross in 72 generation of pea plants.



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7. How do chromosomes take part in the formation of male and female child?



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Additional Questions Answer The Following In Detail

1. Explain the structure of chromosomes with suitable diagram.



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2. What is mutation? Explain the two types of mutation.



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3. Explain the monohybrid cross, with a diagram and describe the interpretation of Mendel on monohybrid cross.



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4. Explain with an example the inheritance of dihybrid cross. How is it different from monohybrid cross?



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5. Explain the Watson and Crick model of DNA.



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6. Explain the detail, the various steps of DNA replication.



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Additional Questions Hots

1. What do you understand about DNA, gene and chromosome in short?



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2. What is the difference between a genemutation and a chromosomal mutation?



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