BIOLOGY

BOOKS - SRIJAN BIOLOGY (ENGLISH)

PRINCIPLES OF INHERITANCE AND VARIATION

Illustrative Questions

1. List any four symptoms shown by a Klinefelter syndrome sufferer. Explain the cause of this disorder.

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2. Define monosomy.

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3. In humans, genetically, the sex of the child is determined by the father and not by the mother. Explain.

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4. What are the advantages of using Drosophila for experiments on genetics?

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5. In a testcross AaBb x aabb, 90% of the progeny is like parents. Determine:

The progeny type for rest of the population.

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6. In a testcross AaBb x aabb, 90% of the progeny is like parents. Determine:

Are the genes linked?

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7. In a testcross AaBb x aabb, 90% of the progeny is like parents. Determine:

Is there any crossing over between the genes?

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8. In humans, genetically, the sex of the child is determined by the father and not by the mother. Explain.

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9. Explain how an XXY individual can arise in humans?

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10. If the distance between the genes on a chromosome is as follows, prepare a genetic map and assign the correct order of genes. X-Z = 5 cm Y - Z = 3 cm X - Y = 2 cm

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11. Colour blindness is a recessive trait. A couple with normal vision has two sons - one colourblind and one with normal vision. If the couple has two daughters, what proportion of them will have normal vision?

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12. Fill the gaps of the following paragraph taking appropriate words from the bracket (first, second, meiosis, mitosis, 1:1, 1:2, gametes, male, female, 50%, 100%). In human beings male has XY and female has XX chromosome complement. The sex chromosomes segregate during the (a) division of (b)____ The X-chromosome constitutes (c) ____ of produced sperms and (d)___ of eggs. If randomly mated, the ratio of sex expression is (e) _____. The sex of the offspring is determined by (f)___ of (g) _____.

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13. Answer the following questions referring the data below.

Grey colour $\left(b^{+}/b\right)$, normal winged $\left(Vg^{+}/Vg\right)F_1$ female X Black coloured (b/b) vestigial winged (Vg/Vg) male.

The offspring were grey normal 126, grey vestigial 24, black normal 26 and black vestigial 124.

What ratio is expected in this cross? Does the above phenotypic ratio confirm the expected ratio?

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14. Answer the following questions referring the data below.

Grey colour $\left(b^{+}/b\right)$, normal winged $\left(Vg^{+}/Vg\right)F_1$ female X Black coloured (b/b) vestigial winged (Vg/Vg) male.

The offspring were grey normal 126, grey vestigial 24, black normal 26 and black vestigial 124.

What is the cause of above phenotypic ratio?

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15. Match the columns

Column A	Column B
(a) Mitosis	1. Skin cancer
	2. Ascorbic acid deficiency
(b) Double fertilisation	3. X-linked
	4. Dominant mutation
(c) AB blood group	5. Codominance
	6. Universal recipient
(d) Bar eye of *Drosophila melanogaster*	7. Zygote and endosperm
	8. Microtubules
(e) Xeroderma pigmentosum	9. Congression
	10. Diploid and triploid cells
	11. DNA repair
	12. Crossing over

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16. Draw the gene maps of the following:

Recombination frequency between three recessive genes present on X-chromosome of Drosophila were found to be as follows: (i) sc (scute) and ec (echinus or rough eye) = 7.6% (ii) ec and cv (cross veinless) = 9.7% (iii) sc and cv = 17.3%

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17. Draw the gene maps of the following:

Morgan and Strutevant found recombination frequencies between 3 genes to be as follows: (i) b (black body) and vg (vestigial wings) = 18% (ii) b and cn (cinnabar eye) = 9% (iii) on and vg = 9.5%

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18. A diploid organism is heterozygous for four loci, how many types of gametes can be produced?

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19. Explain law of dominance using a monohybrid cross.

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20. Define and design a testcross.

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21. Using a Punnet Square, work out the distribution of phenotypic features in the first filial generation after a cross between a homozygous female and heterozygous male for a single locus.

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22. Two heterozygous parents are crossed. If the two loci are linked, what would be the distribution of phenotypic features in F_1 generation for a dihybrid cross?

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23. Briefly mention the contribution of T.H. Morgan in genetics

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24. What is Pedigree analysis? Suggest how much analysis can be useful?

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25. A child has blood group O. If the father has blood group A and mother's blood group is B, work out the

genotypes of parents and the possible genotypes of other offspring.

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26. Mention any two autosomal genetic disorders with their symptoms.

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27. "Genes contain the information that is required to express a particular trait. Explain

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28. In our society a woman is often blamed for not bearing male child. Do you think it is right? Justify.

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29. Colourblindness is more frequent in males as compared to females. Comment.

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30. If a father and son are both defective in red green colour vision, is it likely that the son inherited the trait from his father? Comment

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31. Why did Morgan observe complete linkage in male Drosophila but not in female Drosophila?

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32. Pure lines and clones do not exhibit genetic variations for natural selection. Why?

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33. Sexual reproduction contributes to continuous variations in cross breeding populations, how?

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34. Why is male sex called hemizygous in man and Drosophila?

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35. Why are sperm and ova said to be the connecting link between two consecutive generations?

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36. T.H. Morgan while going on walk, found a fruit covered with flies. He took the flies to the laboratory. He performed experiments for several generations and was surprised to observe that some characters do not obey Mendelian principle of independent assortment. Write the common name and the scientific name of flies.

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37. T.H. Morgan while going on walk, found a fruit covered with flies. He took the flies to the laboratory. He performed experiments for several generations and was surprised to observe that some characters do not obey Mendelian principle of independent assortment. What is the cause of this phenomenon?

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38. T.H. Morgan while going on walk, found a fruit covered with flies. He took the flies to the laboratory. He performed experiments for several generations and was surprised to observe that some characters do not

obey Mendelian principle of independent assortment.

Fill in the blanks: The tendency of certain traits of two characters to be inherited together generation after generation is called __. The tendency of traits of two characters to separate in certain generations is_____.

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39. T.H. Morgan while going on walk, found a fruit covered with flies. He took the flies to the laboratory. He performed experiments for several generations and was surprised to observe that some characters do not obey Mendelian principle of independent assortment.

Draw the diagram of physical basis of this type of inheritance.

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40. In Antirrhinum RR is phenotypically red, rr is white and Rr is pink. Mention the phenotype and the ratio in F1 generation of the following crosses: (i) RR X Rr (ii) rr RR (iii) Rr x Rr (iv) rr x Rr .

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41. Name the other plant which shows similar type of inheritance. Give the scientific name.

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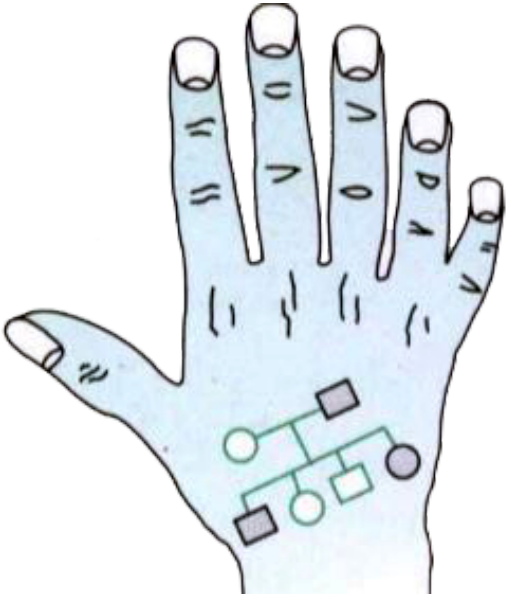
42. The given figure of a human shows a pedigree analysis. Answer the following questions based on the figure.



In the pedigree which character is represented?

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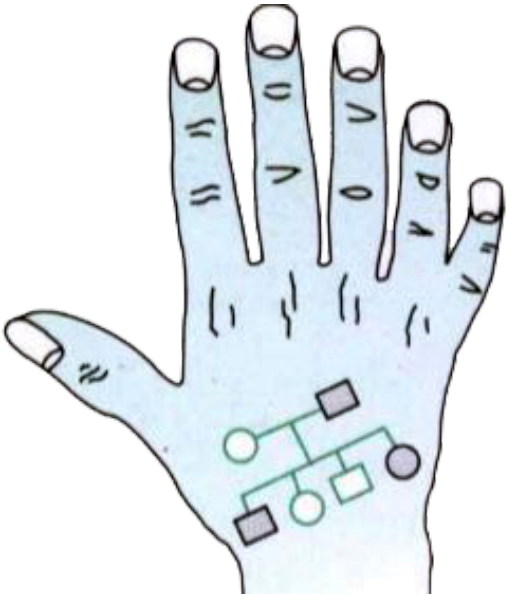
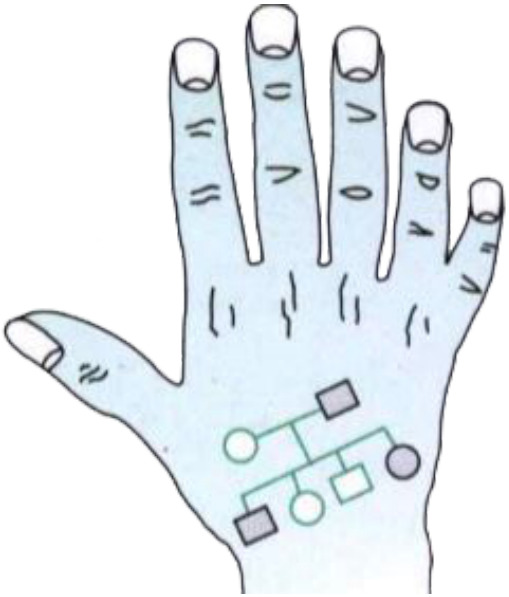
43. The given figure of a human shows a pedigree analysis. Answer the following questions based on the figure.



In the pedigree which character is represented?

Watch Video Solution

44. The given figure of a human shows a pedigree analysis. Answer the following questions based on the figure.



Which one is heterozygous, male or female? Give reason.

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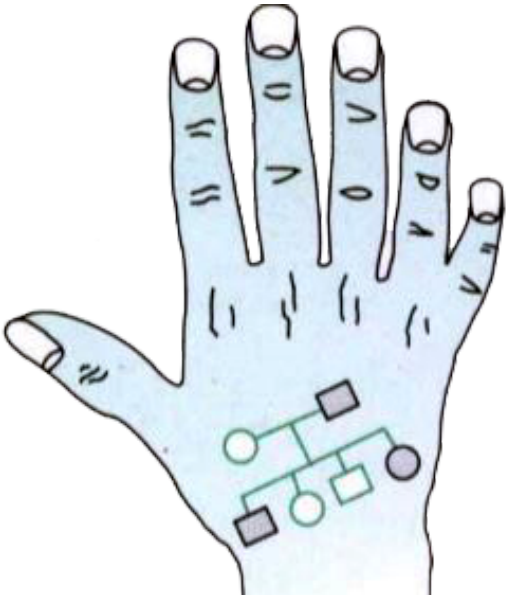
45. The given figure of a human shows a pedigree analysis. Answer the following questions based on the figure.



In the pedigree which character is represented?

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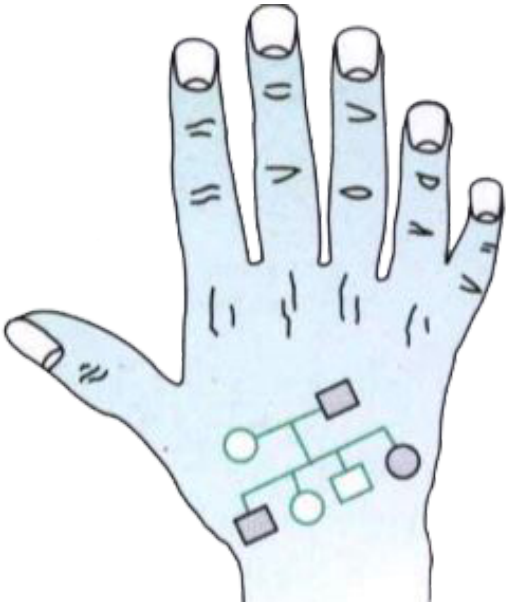
46. The given figure of a human shows a pedigree analysis. Answer the following questions based on the figure.



What is the probability of the disorder occurring in fifth child?

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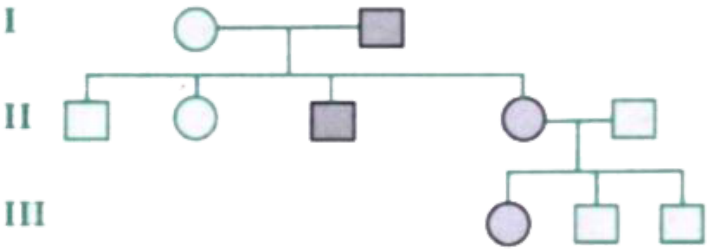
47. Study the given pedigree chart and answer the following questions:



Is the trait recessive or dominant?

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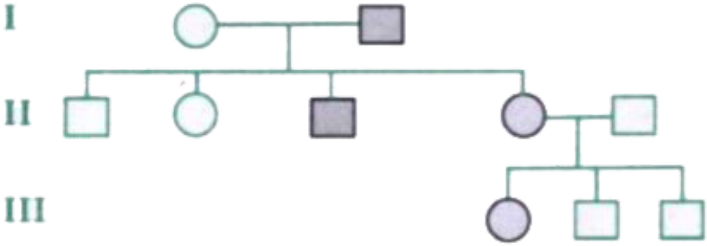
48. Study the given pedigree chart and answer the following questions:



Is the trait sex-linked or autosomal?

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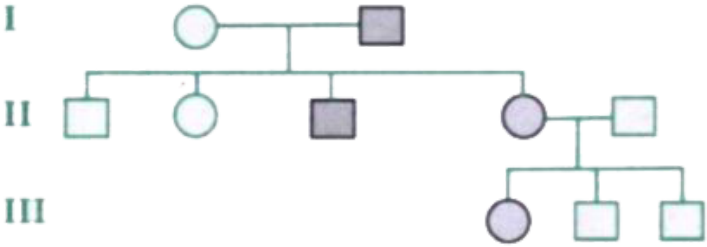
49. Study the given pedigree chart and answer the following questions:



Give the genotypes of the parents shown in generation

I and their third child shown in generation II and first grand child shown in generation III.

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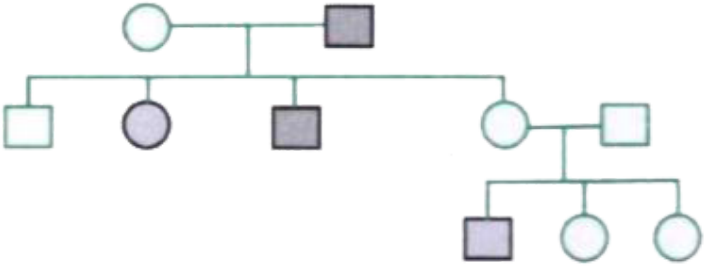
50. Study the given pedigree chart and answer the questions that follow:



Is the trait recessive or dominant?

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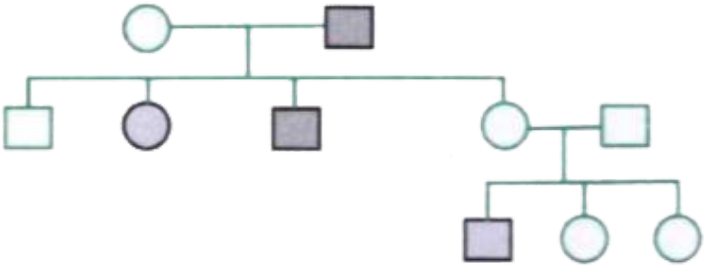
51. Study the given pedigree chart and answer the questions that follow:



Is the trait sex-linked or autosomal?

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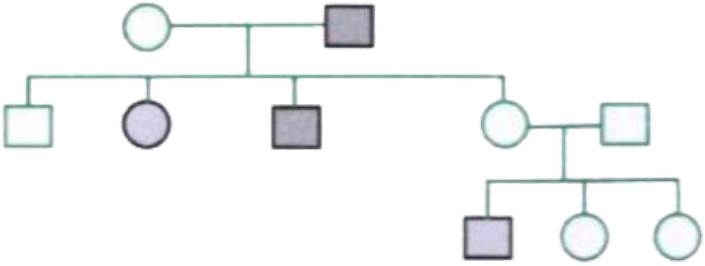
52. Study the given pedigree chart and answer the questions that follow:



Give the genotype of the parents in generation I and their third and fourth child in generation II.

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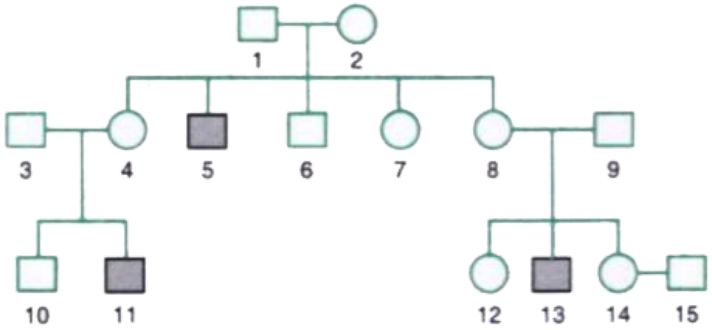
53. Haemophilia is a sex-linked recessive disorder of humans. The given pedigree chart shows the inheritance of haemophilia in one family. Study the pattern of inheritance and answer the questions given. (a) Give all the possible genotypes of the members 4, 5 and 6 in the pedigree chart. (b) A blood test shows

that the individual 14 is a carrier of haemophilia. The member number 15 has recently married the member numbered 14. What is the probability that their first child will be a haemophilic male?



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54. A child has PKU disorder, but neither parent has PKU. What is the genotype of the parents? Give reason for your answer.

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55. What is polyploidy?

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56. How can polyploidy be induced in flowering plants?

Watch Video Solution

57. Name some plants in which polyploidy has been induced experimentally

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58. Why is polyploidy common in plants but not in animals?

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59. Sickle-cell anaemia as well as thalassemia are autosomal recessive diseases.

What do the terms autosomal and recessive mean?

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60. Sickle-cell anaemia as well as thalassemia are autosomal recessive diseases.

Why are these diseases more common than expected in certain areas?

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Practice Questions Very Short Answer Type Questions

1. Which scientific term is used for the ability of gene to show multiple effects?

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2. List any two mechanisms by which a variant genotype is produced.

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3. Give the number of chromosomes in Drosophila melanogaster.

Watch Video Solution

4. What is epistasis?

Watch Video Solution

5. Which term did Mendel use for what we now call the genes?

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6. Mendel observed two kinds of ratios 3:1 and 1: 2:1 in F_2 generations in his experiments on garden pea. Name these two kinds of ratios respectively.

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7. How many pairs of homologous chromosomes are present in male Drosophila?

Watch Video Solution

8. What do you understand by the term aneuploidy?

Watch Video Solution

9. Nondisjunction may lead to a zygote containing XXY sex chromosomes, what sex would this produce in Drosophila and in humans?

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10. What is meant by chromosomal mutation?

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11. What are codominant alleles? Give one example.

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12. How many autosomes are found in a single mature human sperm?

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13. Give the scientific name and also the common name of the plant in which incomplete dominance was first discovered.

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14. The map distance in a certain organism between genes A and B is 8 units, between B and C is 4 units and between C and D is 12 units. Which one of these gene pairs will show more recombination frequency? Give reason in just one single sentence in support of your answer.

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15. Name the mechanism by which new alleles appear in a population.

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16. Which of the following diseases could be avoided by analysing the pedigree of the parents: Klinefelter syndrome, Haemophilia, Amoebiasis?

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17. Which of the following conditions could be detected by karyotyping the cells: Klinefelter syndrome, Haemophilia, Amoebiasis?

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18. Which of the following disorders is a haemoglobin based genetic problem: Arthritis, Thalassemia, Malaria?

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19. Under what circumstances it is possible for a father and a son to suffer from haemophilia?

Watch Video Solution

20. Give the meaning of the term allele.

Watch Video Solution

21. At which particular stage of chromosomes do errors like deletion of genes occur in an individual?

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22. Why is Drosophila male fly referred to as heterogametic?

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23. The gene I that controls the ABO blood grouping in human beings has three alleles I^A, I^B and i:

(a) How many different genotypes are likely to be

present in the human population? (b) Also, how many phenotypes are possibly present?

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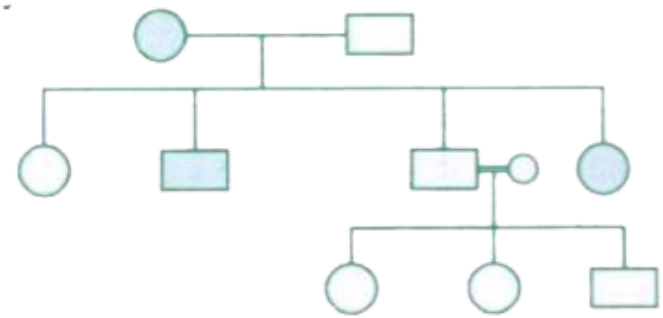
24. In the following pedigree chart, state if the trait is autosomal dominant, autosomal recessive or sex linked. Give a reason for your answer:



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25. Aa Bb was crossed with aa bb. What would be the phenotypic ratio of progeny? Mention the term to denote this kind of cross.

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26. Name the genetic disorder caused due to the presence of extra copy of chromosome no. 21.

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27. Write the genotype of offspring produced by a cross between a homozygous blue-eyed male (BB) and homozygous black-eyed female (bb).

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28. A man blames his wife for giving birth to a female child. Who is responsible for the sex of the child, the man or his wife?

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29. What is gene pool?

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30. A human being suffering from Down syndrome shows trisomy of 21st chromosome. Mention the cause of this chromosomal abnormality.

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31. Name one autosomal dominant and one autosomal recessive Mendelian disorder in human.

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Practice Questions Short Answer Type I Questions

1. How can a structural alteration of a chromosome be detected by looking at the chromosome through a microsope?

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2. List any six traits in garden pea which Mendel studied in his breeding experiments.

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3. How many genes are responsible for (a) ABO system of blood group.

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4. How many genes are responsible for skin colour in humans? What special phenomenon of inheritance is depicted by these two traits respectively?

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5. Why is it not possible to study the pattern of inheritance of traits in human beings, the same way as it is done in pea plant ? Name the alternate method employed for such an analysis of human traits.

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6. Describe the two situations in which the independent assortment of genes results in 50 per cent recombination.

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7. Write the pairs of contrasting characters of the position of flower, colour of unripe pod, shape of ripe pod and colour of cotyledons, which Mendel had related for his experiments on cross-breeding in garden pea.

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8. What will be the kind of children born to a normal father and carrier mother for the trait of haemophilia? Show it with the help of Punnett's square.

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9. A normal man marries a woman who is a carrier for colour blindness. What will be the phenotypes of the children born to them? Depict the phenotypes through a possible cross.

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10. What are autosomes? How many autosomes would be found in the normal liver cells of a human female?

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11. Snapdragon shows incomplete dominance for flower colour. Work out the progeny from cross between plants with pink flowers and state their phenotype.

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12. Haemophilia and Thalassemia both are examples of Mendelian order, but show difference in their inheritance pattern. Explain how.

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13. When a red flowered Antirrhinum plant was crossed with a white flowered Antirrhinum plant, the F_1 offspring had pink flowers. Mention: (a) The genotype of F_1 plants (b) The reason why it did not bear the parental red or white flower colours.

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14. Name the type of inheritance in which genotypic ratio is the same as the phenotypic ratio. Also give the ratio.

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15. The following Table shows the genotypes for ABO blood grouping and their phenotypes. Fill the gaps left in the table:

S.NO.	GENOTYPE	BLOOD GROUP
1.	I^AI^A	A
2.		A
3.	I^BI^B	B
4.		B
5.	I^AI^B	
6.		O

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Practice Questions Short Answer Type Ii Questions

1. Define and distinguish back cross and test cross

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2. Distinguish between epistasis and dominance. State the ratio obtained in dihybrid crosses in F_2 with each one of these phenomena.

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3. A homozygous pea plant with round seed coat and yellow cotyledons is crossed with another homozygous pea plant having wrinkled seed coat and green cotyledons.

Give the dihybrid phenotypic ratio with the corresponding phenotypes.

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4. Define the Heterozygous

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5. Define the following terms:

Genotype


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6. Define phenotype.


Watch Video Solution

7. Define the Dominant


Watch Video Solution

8. Define the Recessive

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9. Discuss under what conditions the ratio 9:3:3:1 is modified to 9: 7 ratio.

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10. What is pedigree analysis? What are the symbols used in such an analysis?

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11. Why do the sons of a carrier mother and a normal father suffer from haemophilia whereas the son of a haemophilic father and normal mother would not?

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12. A woman gave birth to four daughters in successive pregnancy. How would you explain on the basis of genetics that this lady did not bear a son? What are the prospects of her getting a son in fifth pregnancy if it occurs-sure or again a chance?

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13. A plant with red flowers was crossed with another plant of the same species with white flowers. The offspring thus obtained were 60 plants all with only pink flowers. On selfing, these plants produced 60 plants with red flowers. Explain the genetic principle behind these results

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14. What are duplication and translocation in connection with chromosomal mutation?

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15. Why do mostly men suffer from haemophilia and colour blindness? Under what conditions do women suffer from these disorders?

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16. What is aneuploidy and polyploidy? Give one example of each.

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17. Explain the mechanism of sex determination in humans.

Watch Video Solution

18. What is a testcross? What is its significance? Give the phenotypic ratio of the testcross made between homozygous dominant and a heterozygous dominant.

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19. Differentiate between linkage and sex-linked inheritance. Describe the mode of inheritance of any one sex-linked trait in man.

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20. A mother with O type of blood group has conceived. The expected blood group of the foetus is B. Will there be any problem to the mother or the foetus? If so specify the problems.

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21. Human skin colour is believed to be controlled by at least three seprate genes.

(a) What do you call this type of inheritance? (b) Suppose the genes are designated as A, B and C and darkness is dominant over fairness, what shall be the genotypes of the darkest, fairest and intermediate skin colour? (c) What will be the total number of allele

combinations in the gametes of a person heterozygous for all the three genes?

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22. Taking the example of ABO blood types of humans, explain the phenomena of multiple alleles and codominance.

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23. What are linked genes? Diagrammatically represent a cross between a white-eyed female and red-eyed male Drosophila.

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24. What is codominance? How does it differ from incomplete dominance?

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25. If a true breeding homozygous pea plant with green pod and axial flower as dominant characters is crossed with a recessive homozygous pea plant with yellow pods and terminal flowers, then what would be the:

Genotype of the two parents?

Watch Video Solution

26. If a true breeding homozygous pea plant with green pod and axial flower as dominant characters is crossed with a recessive homozygous pea plant with yellow pod and terminal flowers, then what would be the:

Phenotype and genotype of the F_1 offspring?

Watch Video Solution

27. If a true breeding homozygous pea plant with green seed and axial flower as dominant characters is crossed with a recessive homozygous pea plant with

yellow seeds and terminal flowers, then what would be the:

Phenotypic distribution ratio in F_2 population?

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28. A true breeding tall plant is crossed with a true breeding dwarf plant. F_1 progeny is 100% tall and F_2 has tall: dwarf in the ratio 3: 1.

Explain why F_1 shows only one type of parental phenotype.

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29. A true breeding tall plant is crossed with a true breeding dwarf plant. F_1 progeny is 100% tall and F_2 has tall: dwarf in the ratio 3: 1.

Name the patterns of inheritance in which the ratio deviates from the above. Also, mention the deviated phenotypic ratio.

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Practice Questions Long Answer Type Questions

1. Write short notes on: Sex-linkage

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2. Write short notes on: Crossing over

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3. Write short notes on: Sex-chromosome

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4. Give the scientific name of the plant selected by Mendel for his experiments. State three laws given by him. Explain briefly the law of independent assortment with the help of an example. Define complementary

genes. Explain it with the help of diagrammatic sketches.

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5. In an experiment on sweet pea (Lathyrus odoratus), a cross was made between two plants, one having purple flowers and the other having white flowers. In F_1, all had purple flowers and in F_2 , it was a modified Mendelian ratio: (a) What ratio do you expect in F_2? (b) What is this phenomenon termed as? (c) What are such genes known as?

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6. Differentiate between Testcross and Reciprocal cross

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7. Differentiate between genotype and phenotype.

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8. Differentiate between Epistasis and Dominance

Watch Video Solution

9. Differentiate between Codominance and Incomplete dominance

Watch Video Solution

10. Explain in detail the meaning of the phenotypic ratio 9 : 3:3 : 1 in the F_2 generation of dihybrid cross taking example of tall and dwarf plant bearing purple coloured and white flowers in garden pea.

Watch Video Solution

11. Define epistasis and give one example of this phenomenon. How is the phenotypic ratio of F_2 generation in epistasis different from the normal 9:3:3:1 ratio?

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12. In Mendel's breeding experiment on garden pea, the F_2 generation yielded the offspring in a ratio of 25% which produced pure yellow pods, 50% which produced hybrid seed pods and 25% pure green pods. (a) Which of the two colours of pods is dominant? (b) What are the phenotypes of the parents of the F_1 generation?

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13. Explain the law of independent assortment. Give example to show how this plays an important role in inheritance. Why is this law not universally applicable? Give reasons

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14. Write short notes on: Pleiotropy

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15. Write short notes on: Allele

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16. List the different ways by which mutations alter the structure of the chromosomes. Illustrate any one of them by a diagram.

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17. Show by a series of diagrammatic sketches how at the end of meiosis II, four types of gametes are formed

with two parental and two new combinations of the alleles of the genes.

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18. Why are genetic variability essential for a species to survive? Name the main source of genetic variation. How do these sources work?

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19. Write an essay on chromosomal aberrations, giving their cytological and genetic effects.

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20. Describe the phenomenon of epistasis as found in the flower colour of sweet pea and mention how epistasis is different from dominance

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21. How do variations arise in sexually reproducing organisims? Explain briefly.

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22. Mendel crossed true-breeding tall pea plants having purple flowers with short pea plants having white flowers. Derive the genotype and phenotype of the progeny.

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23. State the cause and symptoms of Down syndrome. Name and explain the event responsible for causing this syndrome.

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24. Why is thalassemia is categorised as a mendelian disorder? Write the symptoms and explain the cause of disease. How does it differ from sickle-cell anaemia?

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Previous Year S Board Paper Questions Very Short Answer Type Questions

1. Define gene bank.

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2. Define test cross.

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3. Give scientific term for multiple effects of a gene on the phenotype of an organism.

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4. Mention one cause for variation in nature.

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5. Give a scientific term for an alternative form of the single gene which influences the same character and produces different expressions in different individuals of a species.

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6. If the haploid number of chromosomes in a plant species is 20, how many chromosomes will be present in the cells of the shoot tip?

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7. How many chromosomes are present in meiocytes of fruit fly?

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8. Define homologous chromosomes.

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Previous Year S Board Paper Questions Short Answer Type I Questions

1. Write a short note on albinism.

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2. A woman with blood group O married a man with blood group AB. Show the possible blood groups of the progeny. List the alleles involved in this inheritance

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3. If the mother is a carrier of colour blindness and the father is normal, show the possible genotype and phenotype of the offspring of the next generation, with the help of a punnet square.

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Previous Year S Board Paper Questions Short Answer Type Ii Questions

1. A homozygous pea plant with round seed coat and yellow cotyledons is crossed with another homozygous pea plant having wrinkled seed coat and green cotyledons.

Give the types of gametes produced by plants of F_1 - generation.

Watch Video Solution

2. A homozygous pea plant with round seed coat and yellow cotyledons is crossed with another homozygous

pea plant having wrinkled seed coat and green cotyledons.

Give the dihybrid phenotypic ratio with the corresponding phenotypes.

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3. A homozygous pea plant with round seed coat and yellow cotyledons is crossed with another homozygous pea plant having wrinkled seed coat and green cotyledons.

State the Mendel's principle involved in this cross.

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Previous Year S Board Paper Questions Long Answer Type Questions

1. Give any four reasons for Mendel's success.

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2. Explain the process of sex determination in honeybees.

Watch Video Solution

3. Define complete linkage. Give an example of a cross showing complete linkage.

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4. Explain pleiotropy with reference to phenylketonuria.

Watch Video Solution

Review Questions

1. Give difference between Clone and Offspring

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2. Give difference between Genotype and Phenotype

 Watch Video Solution

3. Give difference between Homozygous and Heterozygous

 Watch Video Solution

4. Differentiate between Codominance and Incomplete dominance

 Watch Video Solution

5. Which one of the following is an example of polygenic inheritance? a) Flower colour in Mirabilis jalapa b) Production of male honeybee c) Pod shape in garden pea d) Skin colour in humans

A. Flower colour in Mirabilis jalapa

B. Production of male honeybee

C. Pod shape in garden pea

D. Skin colour in humans

Answer:

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6. The possible blood group of children born to parents having A and AB blood groups are: a) O, A b) A, B, AB c) B,O, A d) O, A, B, AB

A. O, A

B. A, B, AB

C. BO, A

D. O, A, B, AB

Answer:

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7. A common test to find the genotype of a hybrid is by:

a) Crossing of one F 2 progeny with female parent b) Studying of sexual behaviour of F 1 progeny c) Crossing of one F 1 progeny with homozygous recessive parent d) Crossing of one F 2 progeny with male parent

A. Crossing of one F_2 progeny with female parent

B. Studying of sexual behaviour of F_1 progeny

C. Crossing of one F_1 progeny with homozygous recessive parent

D. Crossing of one F_2 progeny with male parent

Answer:

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8. Which of the following is best suited for codominance? a) Both genes are recessive b) Both genes are dominant c) One gene is recessive d) One gene is dominant

A. Both genes are recessive

B. Both genes are dominant

C. One gene is recessive

D. One gene is dominant

Answer:

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9. Mention one significant function of the Mendelian factors

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10. Mention one significant function of the Inhibiting genes

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11. State the best known contribution of J. Swammerdam

Watch Video Solution

12. State the best known contribution of Bateson

Watch Video Solution

13. State the best known contribution of Johannsen

Watch Video Solution

14. State the best known contribution of Sutton and Boveri

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15. Expand the PKU

Watch Video Solution

16. Expand the PAH

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17. Discuss under what conditions the ratio 9:3:3:1 is modified to 9: 7 ratio.

Watch Video Solution

18. Taking the example of ABO blood types of humans, explain the phenomena of multiple alleles and codominance.

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19. Mendel crossed true-breeding tall pea plants having purple flowers with short pea plants having white flowers. Derive the genotype and phenotype of the progeny.

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Competition Corner Objective Type Questions Multiple Choice Questions

1. A gene that masks another gene's expression is called

A. Dominant

B. Recessive

C. Epistatic

D. Assorted

Answer: C

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2. Some individuals with blood group A may inherit the genes for blond hair, while other individuals with blood group A may inherit the gene for brown hair. This can be best explained by the principle of

A. Dominance

B. Multiple alleles

C. Independent assortment

D. Incomplete dominance

Answer: C

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3. When two hybrids rrTt and Rrtt are crossed, the phenotypic ratio of offspring would be

A. $3:1$

B. $9:3:3:1$

C. $1:1$

D. $1:1:1:1$

Answer: D

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4. Genes with multiple phenotypic effects are known as

A. Complementary genes

B. Pleiotropic genes

C. Cistrons

D. Pseudogenes

Answer: B

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5. In case of incomplete dominance, what will be the phenotypic ratio of F_2 generation?

A. $3:1$

B. $1:2:1$

C. $1:1:1:1$

D. $2:2$

Answer: B

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6. Genes are made up of

A. Histones

B. Hydrocarbons

C. Polynucleotides

D. Lipoproteins

Answer: C

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7. A dihybrid for qualitative trait is crossed with homozygous recessive individual of its type, the phenotypic ratio is

A. $1:2:1$

B. $3:1$

C. $1:1:1:1$

D. $9:3:3:1$

Answer: C

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8. Improvement of human race through hereditary qualities is called

A. Euthenics

B. Human heredity

C. Human demography

D. Eugenics

Answer: D

Watch Video Solution

9. A selection that acts to eliminate one extreme from an array of phenotypes is

A. Disruptive

B. Directional

C. Stabilising

D. Coevolution

Answer: B

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10. A homozygous sweet pea plant with blue flowers (RR) and long pollen (R_0R_0) is crossed with a

homozygous plant having red flowers (rr) and round pollen (r_0r_0) . The resultant F_1 hybrid is test crossed. Which of the following genotype does not appear in its progeny?

A. $Rrrr_0$

B. $RrRr_0$

C. Rrr_0r_0

D. rrR_0r_0

Answer: B

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11. In garden pea, yellow colour of cotyledons is dominant over green and round shape of seed is dominant over wrinkled. When a plant with yellow and round seeds is crossed with a plant having yellow and wrinkled seeds, the progeny showed segregation for all the four characters. The probability of obtaining green round seeds in the progeny of this cross is

A. $1/4$

B. $1/8$

C. $1/16$

D. $3/16$

Answer: D

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12. A true breeding plant producing red flowers is crossed with a pure plant producing white flowers. Allele for red colour of flower is dominant. After selfing the plants of first filial generation, the proportion of plants producing white flowers in the progeny would be

A. $3/4$

B. $1/4$

C. $1/3$

D. $1/2$

Answer: B

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13. The dominant epistasis ratio is

A. $9:3:3:1$

B. $12:3:1$

C. $9:3:4$

D. $9:6:1$

Answer: B

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14. Which of the following represents a test cross?

A. Ww x WW

B. Ww x Ww

C. Ww x ww

D. WW x WW

Answer: C

Watch Video Solution

15. In which one of the following, complementary gene interaction ratio of 9:7 is observed?

A. Fruit shape in Shepherd's purse

B. Coat colour in mouse

C. Feather colour in fowl

D. Flower colour in pea

Answer: D

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16. A character, which is expressed in a hybrid is called

A. Dominant

B. Recessive

C. Codominant

D. Epistatic

Answer: A

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17. The gene, which controls many characters is called

A. Codominant gene

B. Poly gene

C. Pleiotropic gene

D. Multiple gene

Answer: B

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18. The phenotypic ratio in the F_2 generation of dihybrid cross is

A. $9:3:3:1$

B. $1:2:2:4:1:2:1:2:1$

C. $7:1:1:7$

D. $12:8:4$

Answer: A

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19. XO chromosomal abnormality in humans causes

A. Turner's syndrome

B. Down's syndrome

C. Darwin's syndrome

D. Klinefelter's syndrome

Answer: A

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20. Which of the following is not related to sex chromosome X or Y?

A. Turner's syndrome

B. Klinefelter's syndrome

C. Down's syndrome

D. Haemophilia and colour blindness

Answer: C

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21. The genotype of a plant showing the dominant phenotype can be determined by

A. Test cross

B. Dihybrid cross

C. Pedigree analysis

D. Back cross

Answer: A

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22. Which one of the following cannot be explained on the basis of Mendel's Law of Dominance?

A. The discrete unit controlling a particular character is called a factor

B. Out of one pair of factors one is dominant, and the other is recessive

C. Alleles do not show any blending and both the characters recover as such in F_2 generation

D. Factors occur in pairs

Answer: C

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23. Select the correct statement from the ones given below with respect to dihybrid cross.

A. Tightly linked genes on the same chromosome show higher recombinations

B. Genes far apart on the same chromosome show very few recombinations

C. Genes loosely linked on the same chromosome show similar recombinations as the tightly linked ones

D. Tightly linked genes on the same chromosome show very few recombinations

Answer: D

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24. Inheritance of flower colour is an example of incomplete dominance, which is seen in a) Antirrhinum b) Pisum c) Solanum d) Hibiscus

A. Antirrhinum

B. Pisum

C. Solanum

D. Hibiscus

Answer: A

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25. The graphical representation to calculate the probability of all possible genotypes of offspring in a genetic cross is called a) Pedigree analysis b) Karyotype c) Punnett square d) Chromosome map

A. Pedigree analysis

B. Karyotype

C. Punnett square

D. Chromosome map

Answer: C

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26. The F_2 genotypic ratio of monohybrid cross is

A. $1:1$

B. $1:2:1$

C. $2:1:2$

D. $9:3:3:1$

Answer: B

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27. Heterozygous tall plant is crossed with a homozygous dwarf plant then the percentage of progeny having dwarf character is

A. 0

B. 0.25

C. 0.5

D. 1

Answer: C

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28. To determine heterozygosity of a cross, one has to perform a) Backcross b) Reciprocal cross c) Testcross d) Any of these

A. Backcross

B. Reciprocal cross

C. Testcross

D. Any of these

Answer: B

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29. Testcross is a cross between a) Hybrid x Dominant parent b) Hybrid x Recessive parent c) Hybrid x Hybrid parent d) Two distantly related species

A. Hybrid x Dominant parent

B. Hybrid x Recessive parent

C. Hybrid x Hybrid parent

D. Two distantly related species

Answer: B

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30. Which of the following is not a Mendelian disorder?

A. Haemophilia

B. Cystic fibrosis

C. Turner's syndrome

D. Thalessemia

Answer: D

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31. Given below is a sample of a portion of DNA strand giving the base sequence on the opposite strands.

What is so special shown in it?

5' _____ GAATTC' _____3'

3' _____ CTTAAG _____ 5'

A. Replication completed

B. Deletion mutation

C. Start condon at the 5' end

D. Palindromic sequence of base pairs

Answer: D

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32. Which one of the following conditions correctly describes the manner of determining the sex in the given example?

A. Homozygous sex chromosomes (ZZ) determine female sex in birds.

B. XO type of sex chromosomes determine male sex in grasshopper

C. XO condition in humans as found in Turner syndrome, determines female sex.

D. Homozygous sex chromosomes (XX) produce male in Drosophila.

Answer: B

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33. When two unrelated individuals or lines are crossed, the performance of F_1 hybrid is often superior to both its parents. This phenomenon is called

A. Heterosis

B. Transformation

C. Splicing

D. Metamorphosis

Answer: A

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34. Mutations can be induced with

A. Infra red radiations

B. IAA

C. Ethylene

D. Gamma radiations

Answer: D

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35. A person with unknown blood group under ABO system, has suffered much blood loss in an accident and needs immediate blood transfusion. His one friend who has a valid certificate of his own blood type , offers for blood donation without delay. What would have been the type of blood group of the donor friend ?

A. Type B

B. Type AB

C. Type O

D. Type A

Answer: C

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36. How many pairs of contrasting characters in pea plants were studied by Mendel m his experiments ?

A. Five

B. Six

C. Eight

D. Seven

Answer: D

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37. Which is the most common mechanism of genetic variation in the population of a sexually reproducing organism ?

A. Transduction

B. Chromosomal aberrations

C. Genetic drift

D. Recombination

Answer: D

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38. The movement of a gene from one linkage group to another is called

A. Inversion

B. Duplication

C. Translocation

D. Crossing over

Answer: C

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39. Multiple alleles are present

A. On different chromosomes

B. At different loci on the same chromosome

C. At the same locus of the chromosome

D. On non-sister chromatids

Answer: C

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40. An abnormal human baby with 'XXX' sex chromosomes was born due to a) Formation of abnormal sperms in the father b) Formation of abnormal ova in the mother c) Fusion of two ova and one sperm d) Fusion of two sperms and one ovum

A. Formation of abnormal sperms in the father

B. Formation of abnormal ova in the mother

C. Fusion of two ova and one sperm

D. Fusion of two sperms and one ovum

Answer: B

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41. Alleles are

A. Different phenotype

B. True breeding homozygotes

C. Different molecular forms of a gene

D. Heterozygotes

Answer: C

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42. A man with blood group 'A' marries a woman with blood group 'B'. What are all the possible blood groups of their offsprings?

A. A and B

B. A, B and AB

C. A, B, AB and O

D. Only O

Answer: C

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43. Pick out the correct statements

(a) Haemophilia is a sex-linked recessive disease

(b) Down's syndrome is due to aneuploidy

(c) Phenylketonuria is an autosomal recessive gene disorder.

(d) Sickle cell anaemia is a X-linked recessive gene disorder

A. 1, 3 and 4 are correct

B. 1, 2 and 3 are correct

C. 1 and 4 are correct

D. 2 and 4 are correct

Answer: B

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44. A tall true breeding garden pea plant is crossed with a dwarf true breeding garden pea plant. When the F_1 plants were selfed the resulting genotypes were in the ratio of

A. 3:1:: Tall : Dwarf

B. 3:1:: Dwarf: Tall

C. 1:2:1:: Tall homozygous : Tall heterozygous : Dwarf

D. 1:2:1:: Tall heterozygous : Tall homozygous : Dwarf

Answer: C

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45. In a testcross involving F_1 dihybrid flies, more parental-type offsping were produces than the recombinant-type offspring. This indicates

A. The two genes are linked and present on the same chromosome.

B. Both of the characters are controlled by more than one gene.

C. The two genes are located on two different chromosomes.

D. Chromosomes failed to separate during meiosis.

Answer: A

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Competition Corner Objective Type Questions Assertion And Reason Type Questions

1. Assertion: The short-legged sheep is a pure breed.

Reason: They appeared by mutation in one generation.

A. If both Assertion and Reason are true and the Reason is the correct explanation of the Assertion.

B. If both Assertion and Reason are true and the Reason is not the correct explanation of the Assertion.

C. If Assertion is true but the Reason is false.

D. If both Assertion and Reason are false.

Answer: A

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2. Assertion: Human beings are not suitable for breeding experiments to investigate the human traits.

Reason: Their lifespan is small.

A. If both Assertion and Reason are true and the Reason is the correct explanation of the Assertion.

B. If both Assertion and Reason are true and the Reason is not the correct explanation of the Assertion.

C. If Assertion is true but the Reason is false.

D. If both Assertion and Reason are false.

Answer: C

3. Assertion: Overexposure to sun tans the skin in human beings.

Reason: In epidermal cells, melanin appears and saves the skin from UV rays of the sun a) If both Assertion and Reason are true and the Reason is the correct explanation of the Assertion. b) If both Assertion and Reason are true and the Reason is not the correct explanation of the Assertion. c) If Assertion is true but

the Reason is false. d) If both Assertion and Reason are false.

A. If both Assertion and Reason are true and the Reason is the correct explanation of the Assertion.

B. If both Assertion and Reason are true and the Reason is not the correct explanation of the Assertion.

C. If Assertion is true but the Reason is false.

D. If both Assertion and Reason are false.

Answer: A

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4. Assertion: Ratio of complementary genes is 9:7.

Reason: Ratio of supplementary genes is 9:3: 4.

A. If both Assertion and Reason are true and the Reason is the correct explanation of the Assertion.

B. If both Assertion and Reason are true and the Reason is not the correct explanation of the Assertion.

C. If Assertion is true but the Reason is false.

D. If both Assertion and Reason are false.

Answer: B

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5. Assertion: The Y-chromosome is called androsome.

Reason: X and Y-chromosomes differ in form and size.

A. If both Assertion and Reason are true and the Reason is the correct explanation of the Assertion.

B. If both Assertion and Reason are true and the Reason is not the correct explanation of the Assertion.

C. If Assertion is true but the Reason is false.

D. If both Assertion and Reason are false.

Answer: B

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6. Assertion: In eukaryotic chromosome, DNA is long, double-stranded and linear.

Reason: The eukaryotic chromosomes are composed of DNA, proteins, RNA, metal ions and enzymes.

A. If both Assertion and Reason are true and the Reason is the correct explanation of the

Assertion.

B. If both Assertion and Reason are true and the Reason is not the correct explanation of the Assertion.

C. If Assertion is true but the Reason is false.

D. If both Assertion and Reason are false.

Answer: B

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7. Assertion: For law of independent assortment, two pairs of contrasting characters are used

simultaneously in a cross.

Reason: It is a dihybrid cross.

A. If both Assertion and Reason are true and the Reason is the correct explanation of the Assertion.

B. If both Assertion and Reason are true and the Reason is not the correct explanation of the Assertion.

C. If Assertion is true but the Reason is false.

D. If both Assertion and Reason are false.

Answer: A

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8. Assertion: Two chromatids remain held together at one point called centromere.

Reason: Chromosome is double at all points along its length excluding centromere.

A. If both Assertion and Reason are true and the Reason is the correct explanation of the Assertion.

B. If both Assertion and Reason are true and the Reason is not the correct explanation of the Assertion.

C. If Assertion is true but the Reason is false.

D. If both Assertion and Reason are false.

Answer: A

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9. Assertion: Extranuclear chromosomes are present in mitochondria and plastids.

Reason: They are prochromosomes or organelle chromosomes

A. If both Assertion and Reason are true and the Reason is the correct explanation of the

Assertion.

B. If both Assertion and Reason are true and the Reason is not the correct explanation of the Assertion.

C. If Assertion is true but the Reason is false.

D. If both Assertion and Reason are false.

Answer: A

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10. Assertion: Mendel successfully formulated the laws of heredity.

Reason: Mendel did not carry out the study of one character at a time. a) If both Assertion and Reason are true and the Reason is the correct explanation of the Assertion. b) If both Assertion and Reason are true and the Reason is not the correct explanation of the Assertion. c) If Assertion is true but the Reason is false. d) If both Assertion and Reason are false.

A. If both Assertion and Reason are true and the Reason is the correct explanation of the Assertion.

B. If both Assertion and Reason are true and the Reason is not the correct explanation of the Assertion.

C. If Assertion is true but the Reason is false.

D. If both Assertion and Reason are false.

Answer: C

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11. Assertion: Progeny of pure line is heterozygous.

Reason: Pure lines are not the progeny of homozygous organisms.

A. If both Assertion and Reason are true and the Reason is the correct explanation of the Assertion.

B. If both Assertion and Reason are true and the Reason is not the correct explanation of the Assertion.

C. If Assertion is true but the Reason is false.

D. If both Assertion and Reason are false.

Answer: D

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12. Assertion: In honeybee, female is diploid and male is haploid.

Reason: Gametes are formed by meiosis in female and

by mitosis in male. a) If both Assertion and Reason are true and the Reason is the correct explanation of the Assertion. b) If both Assertion and Reason are true and the Reason is not the correct explanation of the Assertion. c) If Assertion is true but the Reason is false. d) If both Assertion and Reason are false.

A. If both Assertion and Reason are true and the Reason is the correct explanation of the Assertion.

B. If both Assertion and Reason are true and the Reason is not the correct explanation of the Assertion.

C. If Assertion is true but the Reason is false.

D. If both Assertion and Reason are false.

Answer: B

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13. Assertion: The linked genes tend to get inherited together.

Reason: The band between them fails to break.

A. If both Assertion and Reason are true and the Reason is the correct explanation of the Assertion.

B. If both Assertion and Reason are true and the Reason is not the correct explanation of the Assertion.

C. If Assertion is true but the Reason is false.

D. If both Assertion and Reason are false.

Answer: A

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14. Assertion: Drosophila melanogaster is widely used in genetic research.

Reason: Drosophila melanogaster is a readily available

insect. a) If both Assertion and Reason are true and the Reason is the correct explanation of the Assertion. b) If both Assertion and Reason are true and the Reason is not the correct explanation of the Assertion. c) If Assertion is true but the Reason is false. d) If both Assertion and Reason are false.

A. If both Assertion and Reason are true and the Reason is the correct explanation of the Assertion.

B. If both Assertion and Reason are true and the Reason is not the correct explanation of the Assertion.

C. If Assertion is true but the Reason is false.

D. If both Assertion and Reason are false.

Answer: C

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15. Assertion: Haemophilia shows criss-cross inheritance.

Reason: The gene that causes haemophilia is recessive and lies in the sex (X) chromosome.

A. If both Assertion and Reason are true and the Reason is the correct explanation of the Assertion.

B. If both Assertion and Reason are true and the Reason is not the correct explanation of the Assertion.

C. If Assertion is true but the Reason is false.

D. If both Assertion and Reason are false.

Answer: A

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16. Assertion: Mutations are necessary for the survival of the species.

Reason: Lack of mutation gives a temporary advantage

to a species in an unchanged environment. a) If both Assertion and Reason are true and the Reason is the correct explanation of the Assertion. b) If both Assertion and Reason are true and the Reason is not the correct explanation of the Assertion. c) If Assertion is true but the Reason is false. d) If both Assertion and Reason are false.

A. If both Assertion and Reason are true and the Reason is the correct explanation of the Assertion.

B. If both Assertion and Reason are true and the Reason is not the correct explanation of the Assertion.

C. If Assertion is true but the Reason is false.

D. If both Assertion and Reason are false.

Answer: A

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17. Assertion: In four o'clock or snapdragon plant, a cross between a homozygous white-flowered individual and a homozygous red-flowered one produces pink-flowered plants.

Reason: In these plants, the flower colour is determined by three alleles. a) If both Assertion and Reason are true and the Reason is the correct

explanation of the Assertion. b) If both Assertion and Reason are true and the Reason is not the correct explanation of the Assertion. c) If Assertion is true but the Reason is false. d) If both Assertion and Reason are false.

A. If both Assertion and Reason are true and the Reason is the correct explanation of the Assertion.

B. If both Assertion and Reason are true and the Reason is not the correct explanation of the Assertion.

C. If Assertion is true but the Reason is false.

D. If both Assertion and Reason are false.

Answer: C

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18. Assertion: The person heterozygous for sickle-cell trait produces both normal $\left(Hb^A\right)$ and abnormal haemoglobin $\left(Hb^S\right)$.

Reason: The normal allele and the sickle-allele are codominant.

A. If both Assertion and Reason are true and the Reason is the correct explanation of the

Assertion.

B. If both Assertion and Reason are true and the Reason is not the correct explanation of the Assertion.

C. If Assertion is true but the Reason is false.

D. If both Assertion and Reason are false.

Answer: A

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19. Assertion: Law of independent assortment holds good for the gene pairs that occur in different pairs of

the chromosomes.

Reason: It is the chromosome and not the individual gene which segregates during gamete formation.

A. If both Assertion and Reason are true and the Reason is the correct explanation of the Assertion.

B. If both Assertion and Reason are true and the Reason is not the correct explanation of the Assertion.

C. If Assertion is true but the Reason is false.

D. If both Assertion and Reason are false.

Answer: A

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20. Assertion: In humans, the gamete contributed by male determines whether the child produced will be male or female.

Reason: Sex in humans is polygenic trait depending upon a cumulative effect of some genes on X-chromosome and some on Y-chromosome. a) If both Assertion and Reason are true and the Reason is the correct explanation of the Assertion. b) If both Assertion and Reason are true and the Reason is not the correct explanation of the Assertion. c) If Assertion is true but the Reason is false. d) If both Assertion and Reason are false.

A. If both Assertion and Reason are true and the Reason is the correct explanation of the Assertion.

B. If both Assertion and Reason are true and the Reason is not the correct explanation of the Assertion.

C. If Assertion is true but the Reason is false.

D. If both Assertion and Reason are false.

Answer: C

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Multiple Choice Question

1. The genetic ratio of 9:3:3:1 is due to:

A. Segregation of characters

B. Crossing over of character

C. Independent assortment of genes

D. Homologous pairing between chromosomes

Answer: C

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2. Choose the chromosome, in a human, that possesses least number of genes.

A. 21st chromosome

B. Autosome

C. X-Chromosome

D. Y-Chromosome

Answer: D

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3. G. J. Mendel was a:

A. British monk

B. Australian monk

C. Austrian monk

D. German scientist

Answer: C

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4. Select the incorrect match.

A. Pleiotropy - More than two alternative forms of a gene

B. Codominance - Both gene express their expression independently

C. Both (b) and (c)

D. None of these

Answer: A

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5. In a dihybrid cross, if you get 9:3:3:1 ratio it denotes that:

A. The alleles of two genes are interacting with each other

B. It is a multigenic inheritance

C. It is a case of multiple allelism

D. The alleles of two genes are segregating independently.

Answer: B

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6. A monohybrid cross produced tall and dwarf pea plants in ratio of 3:1. Their genotypes would be:

A. $\top \times Tt$

B. $Tt \times Tt$

C. $\top \times$

D. $Tt \times$

Answer: B

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7. Common test to find genotype of hybrid is by:

A. Studying sexual behaviour of F_1 progeny

B. Crossing F_2 individuals with recessive parents

C. Crossing one F_2 progeny with male parent

D. Crossing one F_2 progeny with female parent

Answer: B

View Text Solution

8. Which one is a test cross?

A. Ww x Ww

B. Ww x ww

C. ww x ww

D. WW x Ww

Answer: B

View Text Solution

9. Mating of an organism to a double recessive in order to determine whether it is homozygous or heterozygous for a character under consideration is called:

A. Reciprocal cross

B. Test cross

C. Dihybrid cross

D. Back cross

Answer: B

View Text Solution

10. A cross between two tall plants resulted in offspring having few dwarf plants. What would be the genotypes of both the parents?

A. TT and Tt

B. Tt and Tt

C. TT and TT

D. Tt and tt

Answer: B

View Text Solution

11. The term genetics was proposed by:

A. Mendel

B. Bateson

C. Morgan

D. Johannsen

Answer: B

View Text Solution

12. The F_2 genotypic ratio of monohybrid cross is:

A. $1:1$

B. $1:2:1$

C. $2:1:2$

D. $9:3:3:1$

Answer: B

View Text Solution

13. A dihybrid for qualitative trait is crossed with homozygous recessive individual of its type, the phenotype ratio is:

A. $1:2:1$

B. $3:1$

C. $1:1:1:1$

D. $9:7$

Answer: C

View Text Solution

14. In order to find out the different types of gametes produced by a pea plant having genotype AaBb, it should be crossed with a plant with the genotype:

A. AABB

B. AaBb

C. AABb

D. aabb

Answer: D

View Text Solution

15. The autosomal disorder/disease in humans is:

A. Colour blindness

B. Thalassemia

C. Haemophilia

D. Turner's Syndrome

Answer: B

View Text Solution

16. Distance between the genes and percentage of recombination shows:

A. a direct relationship

B. an inverse relationship

C. a parallel relationship

D. no relationship

Answer: A

View Text Solution

17. In Mirabilis jalapa, the number of F_2 red flowered plants in a cross of red flowered and white flowered would be:

A. 1

B. 2

C. 8

D. 6

Answer: A

View Text Solution

18. In pea plants, yellow seeds are dominant to green. If a heterozygous yellow seeded plant is crossed with a green-seeded plant, what ratio of yellow and green seed plants would you expect in F_1 generation?

A. $9:1$

B. $3:1$

C. $1:3$

D. $50:50$

Answer: D

View Text Solution

19. Which of the following is best suited for codominance?

A. Both are recessive

B. Both are dominant

C. One is recessive

D. One is dominant

Answer: B

View Text Solution

20. Incomplete dominance is shown by:

A. Primrose

B. Mirabilis

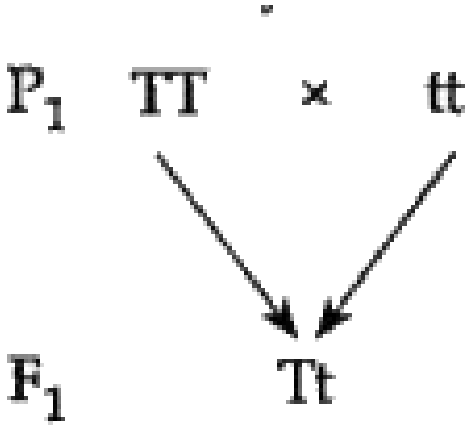
C. Helianthus

D. Pea

Answer: B

View Text Solution

21. Study the given monohybrid cross :



A test cross for this F_1 will be:

A. $Tt \times \ \top$

B. $Tt \times$

C. $Tt \times Tt$

D. $Tt \times$

Answer: B

View Text Solution

22. Genotypic ratio of a monohybrid cross is:

A. $5:1$

B. $3:1$

C. $1:2:1$

D. $1:1$

Answer: C

View Text Solution

23. Conditions of a karyotype 2n +1, 2n-1 and 2n + 2,2n-2 are called:

A. Aneuploidy

B. Polyploidy

C. Allopolyploidy

D. Monosomy

Answer: A

View Text Solution

24. Which one of the following is an example of polygenic inheritance?

A. Flower colour in Mirabilis jalapa

B. Production of male honeybee

C. Pod-shape in garden pea

D. Skin colour in humans

Answer: D

View Text Solution

25. Find out the wrong statement

A. Test cross ratio is 1:1

B. Test cross is a back cross.

C. Back cross is always a test cross.

D. Test cross is done between F_1 hybrid and homozygous recessive parent.

Answer: C

View Text Solution

26. ZZ/ZW type of sex determination is seen in:

A. Platypus

B. Snails

C. Cockroach

D. Peacock

Answer: D

View Text Solution

27. Which of the following genotypes show the heterozygous condition?

A. Rr

B. RR

C. rr

D. None of these

Answer: A

View Text Solution

28. Tt x tt is:

A. Reciprocal cross

B. Hybridization

C. Test cross

D. Back cross

Answer: C

View Text Solution

29. Mother and father of a person with 'O' blood group have 'A' and 'B' blood group, respectively. What would be the genotype of both mother and father?

A. Mother is homozygous for 'A' blood group and father is heterozygous for 'B'

B. Mother is heterozygous for 'A' blood group and father is homozygous for 'B'

C. Both mother and father are heterozygous for 'A' and 'B' blood group, respectively

D. Both mother and father are homozygous for 'A' and 'B' blood group, respectively

Answer: C

View Text Solution

30. Why is the allele for wrinkled seed shape in garden peas considered recessive?

A. The allele is less common than the dominant allele. (The wrinkled allele is a rare mutant).

B. It recedes in the F_2 generation when homozygous parents are crossed.

C. Individuals with the allele have lower fitness than that of individuals with the dominant allele.

D. The trait associated with the allele is not expressed in heterozygotes.

Answer: D

View Text Solution

31. When a dihybrid cross is fit into a punnett square with 10 boxes, the maximum number of different phenotypes available are:

A. 8

B. 4

C. 2

D. 2

Answer: B

View Text Solution

32. In his classic experiments on pea plants, Mendel did not use

A. pod length

B. seed shape

C. flower position

D. seed colour

Answer: A

View Text Solution

33. A cross is made between tall pea plant having green pods and dwarf pea plant having yellow pods. Tall plants in F_2 generation out of 16 would be:

A. 7

B. 12

C. 13

D. 15

Answer: B

View Text Solution

34. The genotype of a person with Turner's syndrome will be:

A. 44+XXY

B. 44 + XYY

C. 44+ XO

D. 44+XXYY

Answer: C

View Text Solution

35. In sickle cell anaemia glutamic acid is replaced by valine. Which one of the following triplets codes for valine?

A. GGG

B. AAG

C. GAA

D. GUG

Answer: D

View Text Solution

36. The law of segregation of alleles postulated by Mendel can be related to:

A. presence of both genes on the same chromosome.

B. a gamete receiving only one of the two homologous chromosomes during meiosis.

C. the presence of two genes for each character in a somatic cell.

D. None of these

Answer: B

View Text Solution

37. ABO blood group in human beings cites the example of

A. codominance

B. multiple alleles.

C. pleiotropy

D. Both (a) and (b)

Answer: D

View Text Solution

38. Mendel conducted experiments for:

A. 6 years

B. 5 years

C. 4 years

D. 7 years

Answer: D

View Text Solution

39. How would you test a pea plant whether it is a pure or hybrid for tallness?

A. Crossing the hybrid pea plant with a homozygous dwarf pea plant

B. Crossing the hybrid pea plant with any pea plant

C. Crossing the hybrid pea plant with another tall pea plant of unknown genotype

D. Crossing the hybrid pea plant with a pure tall pea plant

Answer: A

View Text Solution

40. What can be the blood group of offspring when both parents have AB blood group?

A. A and B only

B. AB only

C. A, B, AB, and O

D. A, B, and AB

Answer: D

View Text Solution

41. Which is correct about traits chosen by Mendel for his experiment on pea plant?

A. Tall plants were recessive.

B. Green pod colour was dominant.

C. Terminal flower was dominant.

D. Constricted pod was dominant.

Answer: B

View Text Solution

42. Crossing over in diploid organisms is responsible for:

A. segregation of alleles

B. dominance of genes

C. linkage between genes.

D. recombination of linked genes.

Answer: D

View Text Solution

43. A tobacco plant heterozygous for a recessive character is self-pollinated and 1200 seeds are subsequently germinated. How many seedlings would have the parental genotype?

A. 600

B. 300

C. 1200

D. 800

Answer: A

View Text Solution

44. Regarding ABO blood group, if one parent is homozygous for blood group and other is heterozygous, what are the chances that their child will have O blood group?

A. 0

B. 0.5

C. 0.25

D. 0.75

Answer: B

View Text Solution

45. A colourblind man marries a woman with normal sight who has no history of colour blindness in her family. What is the probability of their grandson being colourblind?

A. 1

B. 0

C. 0.25

D. 0.5

Answer: C

View Text Solution

46. Which of the following is odd one out with reference to basic framework of rules governing inheritance?

A. tall plants

B. yellow or green seeds

C. dwarf plants

D. very long plants

Answer: D

View Text Solution

47. Which of the following is odd one out with reference to contrasting traits studied by Mendel in Pea?

A. Stem height - Tall/dwarf

B. Flower colour - Violet/white

C. Flower position - Axial/terminal

D. Filiali - progeny

Answer: D

View Text Solution

48. The plasma membrane of the red blood cells has ..... A ..... polymers that protrude from its surface and the kind of sugar is controlled by the gene. The gene I has three alleles, ... B..... The alleles .....C..... produce a slightly different form of the sugars, while allele ..... D..... does not produce any protein.

A. A-protein,

$$B - I^A, I^B, i, C - I^A \text{ and } I^B, D - i$$

B. A-sugar, $B - I^A, I^B, i, C - I^B$ and $i, D - I^A$

C. A-fat, $B - I^A, I^B, i, C - I^A$ and $i, D - I^B$

D. A-sugar, $B - I^A, I^B, i, C - I^A$ and $I^B, D - i$

Answer: D

View Text Solution

49. During Mendel's investigation, it was first time that ..... A ..... and ..... B ..... were applied in biology.

	A	B
(a)	statistical analysis	mathematical logic
(b)	scientific analysis	mathematical logic
(c)	statistical analysis	scientific logic
(d)	statistical analysis	simple logic

View Text Solution

50. ..... is incorrect with respect to mutation.

A. Sudden

B. Continuous

C. Change in chromosomes and genes

D. Leads to variation in DNA

Answer: B

View Text Solution

51. Grasshopper is an example of .....A..... type of sex determination in which the ..... B ..... have only

one X chromosome besides the autosomes, whereas..... C..... have a pair of X chromosomes.

A. A-XY, B-females, C-males

B. A-XO, B-males, C-females

C. A-XO, B-females, C-males

D. A-ZW, B-females, C-males

Answer: B

View Text Solution

52. In honeybees, females are .....A ..... having .....B ..... chromosomes and males are

.....C.....having .....D..... chromosomes

A. A-diploid, B-32, C-haploid, D-16

B. A-haploid, B-32, C-diploid, D-16

C. A-haploid, B-16, C-haploid, D-16

D. A-diploid, B-32, C-diploid, D-32

Answer: A

View Text Solution

53. ..... A ..... individuals in sickle-cell anaemia appear .... B..... but they are the .....C .....

of the disease as there is 50% probability of transmission of mutant gene to its progeny.

A. A-Homozygous, B-affected, C-carrier

B. A-Heterozygous, B-unaffected, C-carrier

C. A-Heterozygous, B-affected, C-carrier

D. A-Homozygous, B-unaffected, C-carrier

Answer: B

View Text Solution

54. An agent that promotes mutation is called.....

A. muton

B. mutagen

C. carcinogen

D. None of these

Answer: B

View Text Solution

55. Down's syndrome and Turner's syndrome are due to ..... respectively.

A. monosomic and nullisomic conditions

B. trisomic and nullisomic conditions

C. trisomic and monosomic conditions

D. trisomic and tetrasomic conditions

Answer: C

View Text Solution

56. In sickle-cell anaemia, shape of RBCs under oxygen tension becomes ..... .

A. spherical

B. circular

C. biconcave disc like

D. elongated and curved

Answer: D

View Text Solution

57. Non-disjunction may occur due to the failure of .....chromosomes to separate properly in meiosis I.

A. homologous

B. non-homologous

C. autosomal

D. All of the above

Answer: A

View Text Solution

58. By ..... methods, a pattern of inheritance can be traced in a family.

A. Pedigree analysis

B. Chromosomal analysis

C. Nuclear analysis

D. Cytoplasm analysis

Answer: A

View Text Solution

59. Klinefelter's syndrome is characterised by a karyotype of .....

A. XO

B. XXY

C. XYY

D. XXX

Answer: B

View Text Solution

60. The X body of Henking was observed in.....

A. all sperms during spermatogenesis.

B. all eggs during oogenesis.

C. half of the sperms during spermatogenesis.

D. half of the eggs during oogenesis.

Answer: C

View Text Solution

61. ..... proposed the chromosomal theory of inheritance.

A. Boveri and Morgan

B. Sutton and Boveri

C. Morgan and Mendel

D. Sutton and Mendel

Answer: B

View Text Solution

62. A recessive allele is expressed in .....

A. heterozygous condition only.

B. F_1 generation.

C. homozygous condition only.

D. both homozygous and heterozygous conditions.

Answer: C

View Text Solution

63. Match column I with column II:

Column I		Column II	
A	Test cross	(i)	Tt × TT
B	Monohybrid cross	(ii)	9:3:3:1
C	Back cross	(iii)	3:1
D	Dihybrid cross	(iv)	Tt × tt

A. A-(ii), B-(iv), C-(i), D-(iii)

B. A-(iv), B-(iii), C-(i), D-(ii)

C. A-(iii), B-(iv), C-(ii), D-(i)

D. A-(ii), B-(i), C-(iii), D-(iv)

Answer: B

View Text Solution

64. Match the column I with column II and select the correct option.

Column I		Column II	
A	Johannsen	(i)	Crossing over in *Drosophila*
B	Mendel	(ii)	Coined the term gene
C	T.H. Morgan	(iii)	Law of segregation

A. A-(ii), B-(i), C-(iii)

B. A-(iii), B-(i), C-(ii)

C. A-(ii), B-(iii), C-(i)

D. A-(iii), B-(ii), C-(i)

Answer: A

View Text Solution

65. Match the column I with column II and select the correct option.

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A. A-(ii), B-(iv), C-(iii), D-(i)

B. A-(iii), B-(iv), C-(i), D-(ii)

C. A-(i), B-(i), C-(iv), D-(ii)

D. A-(iii), B-(iv), C-(ii), D-(i)

Answer: B

View Text Solution

66. Match the types of sex determination methods given in column I with their features given in column II

and select the correct option.

Column I (Method of sex determination)		Column II (Features)	
A	XX-XY type	(i)	Male homogametic and female heterogametic
B	ZZ-ZW type	(ii)	Female homogametic and male heterogametic
C	ZZ-ZO type		
D	XX-XO type		

A. A-(i), B-(ii), C-(ii), D-(i)

B. A-(ii), B-(i), C-(ii), D-(i)

C. A-(i), B-(ii), C-(i), D-(ii)

D. A-(ii), B-(i), C-(i), D-(ii)

Answer: D

View Text Solution

View Text Solution

67. Match column I with column II and select the correct option.

Column I		Column II	
A	Turner's syndrome	(i)	Presence of an extra sex chromosome
B	Down's syndrome	(ii)	Absence of a sex chromosome
C	Kline-felter's syndrome	(iii)	An extra autosomal chromosome

A. A-(ii), B-(i), C-(iii)

B. A-(iii), B-(i), C-(ii)

C. A-(i), B-(ii), C-(iii)

D. A-(ii), B-(iii), C-(i)

Answer: D

View Text Solution

68. Match the symbols used in human pedigree analysis given in column I with their meaning given in column II and choose the correct option.

Column I (Pedigree symbols)		Column II (Meaning)	
A		(i)	Mating
B		(ii)	Affected male
C		(iii)	Consanguine-ous mating
D		(iv)	Unspecified sex

A. A-(ii), B-(i), C-(iv), D-(iii)

B. A-(iii), B-(iv), C-(ii), D-(i)

C. A-(iii), B-(i), C-(iv), D-(ii)

D. A-(ii), B-(iii), C-(iv), D-(i)

Answer: B

View Text Solution

69. Match column I with column II and select the correct option.

Column I		Column II	
A	Autopolyploid	(i)	AABB
B	Allopolyploid	(ii)	2n + 1
C	Nullisomy	(iii)	AAAA
D	Trisomy	(iv)	2n – 2

A. A-(ii), B-(i), C-(iv), D-(iii)

B. A-(iii), B-(iv), C-(ii), D-(i)

C. A-(iii), B-(i), C-(iv), D-(ii)

D. A-(ii), B-(iii), C-(iv), D-(i)

Answer: C

View Text Solution

70. The given image represents:

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A. chromosomes assorting independently.

B. segregation of incompletely linked genes.

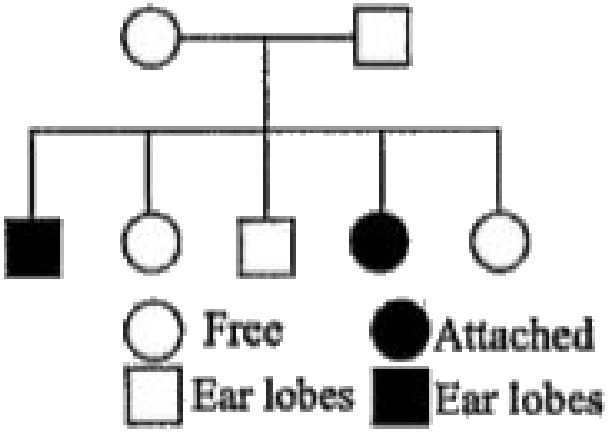
C. crossing over between factors carried on the chromosomes.

D. Both (a) and (c)

Answer: A

View Text Solution

71. Given below is a pedigree chart of a family with five children. It shows the inheritance of attached ear lobes as opposed to the free ones. The squares represent the male individuals and circles the female individuals. Which one of the following conclusions drawn is correct?



A. The parents are homozygous recessive.

B. The parents are homozygous dominant.

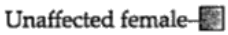
C. The trait is Y-linked.

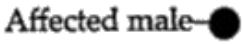
D. The parents are heterozygous.

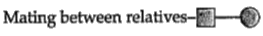
Answer: D

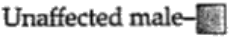
View Text Solution

72. Select the option with correct combination of pedigree symbol and its representation.

A. 

B. 

C. 

D. 

Answer: D

View Text Solution

73. Assertion: Mendel conducted cross pollination experiments on true-breeding lines.

Reason: True-breed lines have stable trait inheritance for several generations.

A. Both assertion and reason are true and reason is the 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: A

View Text Solution

74. Assertion: The maximum frequency of recombination that can result from crossing over between linked genes is 50%.

Reason: Linked genes show higher frequency of crossing over if the distance between them is longer.

A. Both assertion and reason are true and reason is the 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: B

View Text Solution

75. Assertion: In Mirabilis jalapa, selfing of F_1 pink flower plants produces same phenotypic and genotypic

ratio.

Reason: Flower colour gene shows incomplete dominance.

A. Both assertion and reason are true and reason is the 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: A

View Text Solution

76. Assertion: In codominance, F_1 generation resembles both the parents.

Reason: An example is different type of red blood cells that determine ABO blood grouping in humans

A. Both assertion and reason are true and reason is the 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: B

View Text Solution

77. Assertion: Behaviour of chromosome is parallel to gene.

Reason: Genes are located on the chromosome.

A. Both assertion and reason are true and reason is the 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: A

View Text Solution

78. Read the passages and answer the questions that follow

Gregor Johann Mendel proposed the law of inheritance or Mendel's law of inheritance after conducting several experiments on the garden pea plants. This includes three laws that are the law of dominance, the law of segregation and the law of independent assortment. More and more studies and discoveries were made on genetics after Mendel's studies. However, regularities of his experiment are applied only to the organisms he consciously chose for his experiments. These laws do not explain some pattern of genetic inheritance. Apart

from these laws, there are several deviations. The principle of independent assortment doesn't apply if the genes are close together (or linked) on a chromosome. Also, alleles do not always interact in a standard dominant/ recessive way, particularly if they are codominant or have differences in expressivity or penetrance.

Mendel used ..... for his experiments.

A. Pisum sativum

B. Pisum album

C. Oryza sativa

D. Oryza Orientalis

Answer: A

View Text Solution

79. Read the passages and answer the questions that follow

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In what mode of inheritance, the F_1 progeny exhibit characteristics of both the parents?

A. Complete dominance

B. Incomplete dominance

C. Codominance

D. Multiple allelism

Answer: C

View Text Solution

80. Read the passages and answer the questions that follow

Gregor Johann Mendel proposed the law of inheritance or Mendel's law of inheritance after conducting several experiments on the garden pea plants. This includes three laws that are the law of dominance, the law of segregation and the law of independent assortment. More and more studies and discoveries were made on genetics after Mendel's studies. However, regularities of his experiment are applied only to the organisms he

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ABO blood grouping in humans is an instance of .....

A. complete dominance

B. incomplete dominance

C. codominance

D. pseudoscience

Answer: C

View Text Solution

81. Read the passages and answer the questions that follow

Gregor Johann Mendel proposed the law of inheritance or Mendel's law of inheritance after conducting several experiments on the garden pea plants. This includes three laws that are the law of dominance, the law of segregation and the law of independent assortment. More and more studies and discoveries were made on

genetics after Mendel's studies. However, regularities of his experiment are applied only to the organisms he consciously chose for his experiments. These laws do not explain some pattern of genetic inheritance. Apart from these laws, there are several deviations. The principle of independent assortment doesn't apply if the genes are close together (or linked) on a chromosome. Also, alleles do not always interact in a standard dominant/ recessive way, particularly if they are codominant or have differences in expressivity or penetrance.

In incomplete dominance.....

A. Phenotype of both allele is expressed

B. Phenotype of only one allele is expressed

C. Phenotype of neither of the alleles are expressed

D. Phenotype of both allele is partially expressed

Answer: D

View Text Solution

82. Read the passages and answer the questions that follow

Gregor Johann Mendel proposed the law of inheritance or Mendel's law of inheritance after conducting several experiments on the garden pea plants. This includes three laws that are the law of dominance, the law of segregation and the law of independent assortment.

More and more studies and discoveries were made on genetics after Mendel's studies. However, regularities of his experiment are applied only to the organisms he consciously chose for his experiments. These laws do not explain some pattern of genetic inheritance. Apart from these laws, there are several deviations. The principle of independent assortment doesn't apply if the genes are close together (or linked) on a chromosome. Also, alleles do not always interact in a standard dominant/ recessive way, particularly if they are codominant or have differences in expressivity or penetrance.

Height, skin colour and eye colour are examples of

A. Polygenic traits

B. Incomplete dominance

C. Codominance

D. None of these

Answer: A

View Text Solution

83. Read the passages and answer the questions that follow

Chromosomal abnormalities, alterations and aberrations are at the root of many inherited diseases and traits. Chromosomal abnormalities often give rise to birth defects and congenital conditions that may

develop during an individual's lifetime. Examining the karyotype of chromosomes (karyotyping) in a sample of cells can allow detection of a chromosomal abnormality. The normal human chromosome contains 23 pairs of chromosomes, giving a total of 46 chromosomes in each cell, called diploid cells. Aneuploidy refers to the presence of an extra chromosome or a missing chromosome and is the most common form of chromosomal abnormality. Down syndrome, Turner syndrome, and Klinefelter's syndrome constitute the most common chromosomal abnormalities.

On which of the following chromosomal disorders are based on?

A. Mutant allele and their defective products

B. Imbalance in chromosome number and chromosome arrangement

C. Mutant allele and chromosome arrangement

D. Mutant allele and imbalance in chromosome number

Answer: B

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84. Read the passages and answer the questions that follow

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abnormalities.

Which of the following is not a characteristic feature of Down's syndrome?

A. Very tall

B. Small round head

C. Furrowed tongue

D. Partially open mouth

Answer: A

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85. Read the passages and answer the questions that follow

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most common form of chromosomal abnormality. Down syndrome, Turner syndrome, and Klinefelter's syndrome constitute the most common chromosomal abnormalities.

What is the genotype of the person suffering from Klinefelter's syndrome?

A. 44+ XXX

B. 42+XXX

C. 44 + XXY

D. 42+ XXY

Answer: C

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86. Read the passages and answer the questions that follow

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most common form of chromosomal abnormality. Down syndrome, Turner syndrome, and Klinefelter's syndrome constitute the most common chromosomal abnormalities.

Which of the following is incorrect with respect to Klinefelter's syndrome?

A. The fusion of an abnormal egg with a normal sperm

B. The fusion of a normal egg with an abnormal sperm

C. The fusion of a normal egg with a normal sperm

D. An additional copy of X-chromosome

Answer: C

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87. Read the passages and answer the questions that follow

Sex chromosomes of some animals and man besides having genes for sex character also possess gene for non sexual (somatic) characters. These genes for non sexual characters being linked with sex chromosomes are carried with them from one generation to the other. Such non-sexual (somatic) characters linked with sex chromosomes are called sex linked characters or traits, genes for such characters are called sex linked

genes and the inheritance of such characters is called sex linked inheritance. The concept of sex-linked inheritance was introduced by T. H. Morgan in 1910, while working on Drosophila melanogaster.

A Y-linked gene .....

A. is expressed only when homozygous

B. is present near the telomere of long arm in human

C. is carried by mother

D. expressed only in men

Answer: D

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88. Read the passages and answer the questions that follow

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while working on Drosophila melanogaster.

In a family of four including a normal mother, a normal father, a colourblind son and a normal son, who do you think has the defective X gene other than the affected son?

A. The mother

B. The father

C. The normal son

D. The effected son only

Answer: A

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89. Read the passages and answer the questions that follow

Sex chromosomes of some animals and man besides having genes for sex character also possess gene for non sexual (somatic) characters. These genes for non sexual characters being linked with sex chromosomes are carried with them from one generation to the other. Such non-sexual (somatic) characters linked with sex chromosomes are called sex linked characters or traits, genes for such characters are called sex linked genes and the inheritance of such characters is called sex linked inheritance. The concept of sex-linked inheritance was introduced by T. H. Morgan in 1910,

while working on Drosophila melanogaster.

Y linked inheritance is .....inheritance.

A. Criss cross

B. Straight

C. Loop

D. Jumping

Answer: B

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90. Read the passages and answer the questions that follow

Sex chromosomes of some animals and man besides having genes for sex character also possess gene for non sexual (somatic) characters. These genes for non sexual characters being linked with sex chromosomes are carried with them from one generation to the other. Such non-sexual (somatic) characters linked with sex chromosomes are called sex linked characters or traits, genes for such characters are called sex linked genes and the inheritance of such characters is called sex linked inheritance. The concept of sex-linked inheritance was introduced by T. H. Morgan in 1910, while working on Drosophila melanogaster.

Which of the following is wrong?

A. Y chromosome lacks dosage compensation

B. X linked genes are inherited as criss cross

C. Y linked gene like haemophilia passes from father to son

D. X linked recessive genes are carried by females

Answer: C

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91. Read the passages and answer the questions that follow

Co-dominance

Mendel's early work with pea plants provided the foundational knowledge for genetics, but Mendel's

simple example of two alleles, one dominant and one recessive, for a given gene is a rarity. In fact, dominance and recessiveness are not actually allelic properties. Rather, they are effects that can only be measured in relation to the effects of other alleles at the same locus. Furthermore, dominance may change according to the level of organization of the phenotype. Variations of dominance highlight the complexity of understanding genetic influences on phenotypes. Co-dominance is a type of non-Mendelian inheritance pattern that finds the traits expressed by the alleles to be equal in the phenotype. There is neither a complete dominance nor incomplete dominance of one trait over the other for that given characteristic. In camellia flowers, petal colour is controlled by codominance.

When a red flower is crossed with a white flower, all of the offspring are covered in both red and white petals. A scientist crosses a red flower (RR) with a red-and-white (RW) flower. What are the predicted phenotypes of their offspring?

A. All of the offspring will have red-and white petals

B. 50 percent of the offspring will be red, and 50 percent of the offspring will be red and white.

C. All of the offspring will have red petals.

D. 75 percent of the offspring will be red, and 25 percent of the offspring will be white.

Answer: B

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92. Read the passages and answer the questions that follow

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A. Produced from both the alleles

B. Produced from one allele

C. Incompletely produced from both alleles

D. None are functional

Answer: A

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Rather, they are effects that can only be measured in relation to the effects of other alleles at the same locus. Furthermore, dominance may change according to the level of organization of the phenotype. Variations of dominance highlight the complexity of understanding genetic influences on phenotypes. Co-dominance is a type of non-Mendelian inheritance pattern that finds the traits expressed by the alleles to be equal in the phenotype. There is neither a complete dominance nor incomplete dominance of one trait over the other for that given characteristic. In camellia flowers, petal colour is controlled by codominance. When a red flower is crossed with a white flower, all of the offspring are covered in both red and white petals. Punnett square showing a test cross between a white-

furred bull (WW) and a red-furred cow (RR). All their offspring are heterozygotes:

A. Genotype RW

B. Genotype WW

C. Genotype RR

D. Cannot be determined

Answer: A

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94. Read the passages and answer the questions that follow

Co-dominance

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dominance nor incomplete dominance of one trait over the other for that given characteristic. In camellia flowers, petal colour is controlled by codominance. When a red flower is crossed with a white flower, all of the offspring are covered in both red and white petals. Which of the following statement is false?

A. In the ABO blood type system in humans, blood type AB is an example of codominance

B. Both IA and IB are dominant alleles.

C. In codominance, blood type AB implies that both dominant alleles are present and expressed together.

D. Blood type AA is an example of codominance.

Answer: D

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95. Read the passages and answer the questions that follow

Down's syndrome is when you're born with an extra chromosome. Chromosomes contain hundreds, or even thousands, of genes. Genes carry the information that determines the traits (features or characteristics passed on to you from your parents). This additional genetic material alters the course of development and causes the characteristics associated with Down syndrome. With Down syndrome, the extra

chromosome causes delays in the way a child develops, mentally and physically. A few of the common physical traits of Down syndrome are low muscle tone, small stature, an upward slant to the eyes, and a single deep crease across the centre of the palm - although each person with Down syndrome is a unique individual and may possess these characteristics to different degrees, or not at all. The physical features and medical problems associated with Down syndrome can vary widely from child to child. While some kids with DS need a lot of medical attention, others lead healthy lives. Though Down syndrome can't be prevented, it can be detected before a child is born. The health problems that may go along with DS can be treated, and many resources are available to help kids and their

families who are living with the condition.

Persons with Down syndrome usually have..... copies of chromosome 21.

A. No

B. One

C. Two

D. Three

Answer: D

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Characteristics of Down syndrome include.....

A. Short stature

B. Round head

C. Mental retardation

D. All of the above

Answer: D

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Down syndrome may be detected by.....

A. A karyotype from chorionic , villi testing

B. A karyotype from amniocentesis

C. A test to detect substances in the maternal blood

D. All of these

Answer: D

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Another name for Down syndrome is:

A. Trisomy 21

B. Trisomy 13

C. Diploid 21

D. Trisomy 8

Answer: A

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