



BIOLOGY

BOOKS - USHA BIOLOGY (ODIA ENGLISH)

GENETICS

Exercise

1. Location of gene on chromosome is ----

A. Locus

B. Factor

C. Recon

D. Cistron

Answer:



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2. Mendel formulated law of purity of gametes on the basis of ----

A. Monohybrid cross

B. Dihybrid cross

C. Reciprocal cross

D. Test cross

Answer:



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3. Mendel's principles are related to ---

A. Variation

B. Reproduction

C. Hybridisation

D. Heredity

Answer:



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4. Gene pool is the sum total of genes present
in ----

A. Cell

B. Organism

C. Population

D. Ecosystem

Answer:



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5. The ultimate source of variation is ---

A. Mitosis

B. Meiosis

C. Fertilisation

D. Mutation

Answer:



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6. Mendel's law of heredity can be explained with the help of ---

A. Mitosis

B. Meiosis

C. Cloning

D. Both (a) & (b)

Answer:



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7. In a person with Turner syndrome, the number of X-chromosome is



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8. In human genes, multiple genes are involved in the inheritance of ----

- A. Colour blindness
- B. Phenylketoneuria
- C. Sickle cell anaemia
- D. Skin colour

Answer:



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9. A person with sex chromosomes XXY suffers from :

- A. Down's Syndrome
- B. Turner's Syndrome
- C. Sturge - weber Syndrome
- D. Klinefeltr's Syndrome

Answer:



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10. Freemartin is an example of :

- A. Hormonal control of sex
- B. Sex reversal
- C. Environmental Control of sex
- D. Chromosomal control of sex

Answer:



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11. Which of the following types of sex determination is found in grasshopper ?

A. XX-female & XY-male

B. ZW female & ZZ male

C. XX - femals & XO male

D. XX - male & XO female

Answer:



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12. Inheritance of ABO blood group system is an example of ----

- A. Multiple allelism
- B. Incomplete Dominance
- C. Epistasis
- D. Mendelism

Answer:



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13. Which term did Mendel use to denote something in germ cells responsible for transmission of characters?

A. Chromosome

B. Factor

C. Gene

D. DNA

Answer:



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14. Barr bodies are found in.....of a woman

A. Sperm

B. Ova

C. Somatic cells of man

D. Somatic cells of woman

Answer:



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15. Law of independent assortment of Mendel can be proved on the basis of which F₂ ratio ?

A. 0.125694444444444

B. 0.084039351851852

C. 9:3:3:1

D. 0.084027777777778

Answer:



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16. Which of the following genotype of man shows presence of one Barr Body ?

A. XY

B. XXXY

C. XXY

D. All of these

Answer:



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17. Down's syndrome is due to of chromosome 21.

A. Polyploidy

B. Deficiency of Protein

C. Malnutrition

D. Non-disjunction of Chromosome

Answer:



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18. Which one is linked to hypertrichosis ?

A. X - Chromosome

B. Y- Chromosome

C. Autosome

D. all of the above

Answer:



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19. Who worked profoundly on Drosophila genetics ?

A. Mendel

B. thomas morgan

C. Bateson

D. Punnet

Answer:



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20. Which genetic disease is regarded as Royel disease ?

- A. Red- Green Colour blindness
- B. XX female, XO male
- C. Klinefelter's Syndrome
- D. Haemophilia or Bleeder's diseases

Answer:



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21. In birds _____ type of sex determination occurs.

A. XX - female, XY male

B. Calvin Bridges

C. ZW female, ZZ male

D. ZW female, ZO male

Answer:



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22. Who proposed genic balance theory for determination of sex in *Drosophila* ?

A. Crew

B. 44 +XX

C. Wilson

D. Punnet

Answer:



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23. In human, the composition of female destined zygote is ----

A. $22 + X$

B. Insulin

C. $22 + Y$

D. $44 + XX$

Answer:



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24. Human thalassemia is an autosomal recessive hereditary disease caused by defective synthesis of ----



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25. The Pedigree study of haemophilia was first made by ---- in the royal families of Europe.

A. Mendel

B. Cornard

C. Bridges

D. Wilson

Answer:



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26. Turner's syndrome is represented by ----



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27. Probability of genotype TTrr in F_2 - generation of a dihybrid cross is :

A. 9

B. Blending inheritance

C. 3

D. 1

Answer:



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28. 1:2:1 Phenotype and genotypic ratio occurs in case of ---

A. Pseudo alleles

B. blending or intermediate inheritance

C. Multiple alleles

D. Complementary genes

Answer:



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29. One of the genes present exclusively on the X chromosome in human is concerned with ----

A. Baldness

B. Red green colour blindness

C. Night Blindness

D. None of these

Answer:



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30. Which one is a sex-linked disorder?

A. Albinism

B. 0.0840277777777778

C. Haemophilia

D. Sickle cell anaemia

Answer:



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31. What was the phenotypic ratio in F_2 of mendelian . monohybrid cross?

A. 0.0423611111111111

B. 1:1:1:1

C. 0.125694444444444

D. 9:3:3:1

Answer:



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32. What is the ratio of F₂ in a Mendelian Dihybrid cross?

A. 0.125694444444444

B. 0.0423611111111111

C. 9:3:3:1

D. 0.0840277777777778

Answer:



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33. What is Mendel's Monohybrid test cross ratio?

A. 3:1

B. 4:7

C. 9:4

D. 6:8

Answer:



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34. What is the genotypic ratio in F_2 OF Mendelian monohybrid cross?

A. 0.0423611111111111

B. Phenotype

C. 0.125694444444444

D. 0.043055555555556

Answer:



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35. What are the gene pair signifying a trait called?

A. Hybrid

B. Sex-limited character

C. Pure Line

D. Alleles

Answer:



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36. Red-green colour blindness in man is.

A. Sex-linked character

B. Polysomes

C. Sexual character

D. None

Answer:



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37. Somatic chromosomes are autosomes while sex chromosomes are called _____

A. Allosomes

B. Night blindness

C. Nullisomes

D. Giant Chromosomes

Answer:



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38. Which one of the following is a sex-linked character?

A. Haemophilia

B. mouth ulcer

C. Xerophthalmia

D. None

Answer:



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39. Which one of the following is a test cross ?

A. $Tt \times Tt$

B. Nature of egg

C. $TT \times TT$

D. Tt x tt

Answer:



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40. Determination of sex of a child depends upon ----

A. Nature of sperm

B. nature of ovum

C. Health of father

D. Age of mother

Answer:



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41. Number of autosome in human sperm is ----

A. 11

B. 22

C. 44

D. 45

Answer:



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42. Genes for colour blindness in man are located on ----

- A. X-Chromosome only
- B. Y-Chromosome only
- C. Either X or Y Chromosome
- D. On both X & Y Chromosome

Answer:



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43. Which one is a heterozygous condition ?

A. RR

B. rr

C. Rr

D. RRIT

Answer:



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44. Gene mutation is caused by --

A. Reproduction

B. Linkage

C. Change in the sequence of
chromosomes

D. Change in the structure of
chromosomes

Answer:



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45. Sex-linked characters are

- A. Dominant
- B. Recessive
- C. Lethal
- D. Not inherited

Answer:



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46. The human male is represented by sex chromosomes ----

A. XX

B. XO

C. XY

D. YY

Answer:



47. A Down syndrome will be

A. $45 + XX$

B. $44 + XY$

C. $44 + XXY$

D. $22 + XY$

Answer:



48. Sum total of genes in a population is:

- A. Gene BANK
- B. Gene Linkage
- C. Gene Pool
- D. Genome

Answer:



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49. Free-Martins are commonly found in ----

A. Cattle

B. Frogs

C. Horses

D. Man

Answer:



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50. When an allele fails to express itself in presence of the other allele, the former is said to be ----

- A. Recessive
- B. Dominant
- C. Co-dominant
- D. Complementary

Answer:



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51. Two homologous genes which are identical in genotype called ----

A. Homozygous

B. Hemizygous

C. Heterozygous

D. None of these

Answer:



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52. Segregation of alleles takes place during

A. Meiosis

B. Cleavage

C. Fertilization

D. Mitosis

Answer:



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53. Genetic complement is called

A. Genotype

B. Phenotype

C. Alleles

D. Dominant

Answer:



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54. Down's syndrome is due to---

A. Crossing over

B. Linkage

C. Sex-linked inheritance

D. Non-disjunction of Chromosomes

Answer:



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55. If a colour blind man marries a normal woman, their children will be ---

A. Normal daughters and sons

B. Normal sons and carrier daughters

C. Colour blind sons and carrier daughters

D. Colour blind sons and daughters

Answer:



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56. The best method to improve the genetic quality of mankind is ----

A. Marriage restrictions

B. Sterilizations

C. Control of immigrations

D. Sexual separation of defectives

Answer:



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57. To a person with blood group A which one of the following group of blood can be given --

A. A

B. O

C. A,O

D. AB

Answer:



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58. The exchange of chromosome segments between maternal and paternal chromatids during synapsis in meiosis is called ----

A. Linkage

B. Crossing over

C. Telophase

D. Dominance

Answer:



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59. If a normal man marries a carrier woman for colour blindness, their sons may be ---

A. All normal

B. Some are carriers of colour blindness

C. All sons colour blind

D. Both normal and colour blind

Answer:



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60. Marriage between one of the following pairs may cause child death ----

A. Rh-man and Rh+ woman

B. Rh+ man and Rh+ woman

C. Rh- man and Rh- woman

D. Rh+ man and Rh- woman

Answer:



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61. Daughter receives 'X' chromosome from ----

A. Father

B. Mother

C. Both a & b

D. Any of these two

Answer:



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62. Gene for hypertrichosis is ----

A. X-linked recessive

B. X-linked dominant

C. Y-linked

D. Autosomal

Answer:



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63. Sex - determination in *Drosophila melanogaster* is based on ---

A. Ratio between X & Y chromosome.

B. X-Y chromosome mechanism.

C. Genetic Balance between the X-chromosome & autosome.

D. Chromosome environment interaction.

Answer:



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64. Homogametic environment interaction.

A. Birds

B. Humans

C. Drosophila

D. Honey bee

Answer:



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65. Genes for sex influenced characters are present in -----

A. Y-chromosome

B. X-chromosome

C. Autosome

D. Both a & b

Answer:



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66. If a child has O type of blood group and the mother B type, the genotype of mother will be----

A. ii

B. $| \hat{A} |^B$

C. $| \hat{0} |^B$

D. $| \hat{B} |^B$

Answer:



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67. Which of the following types of sex determination is found in grasshopper ?



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68. What type of sex determination is seen in honey bee ?



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69. What type of sex determination seen in human being?



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70. Who discovered Free martin in cattle?



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71. How many Barr bodies are present in a female with Tumers' syndrome?



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72. ZZ/ZW type of sex-determination is seen in



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73. Name the genes located on Y - chromosome of man.



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74. Free-Martins are commonly found in ----



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75. Which caste of honey bee is produced parthenogenetically?



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76. How many pairs of autosomes are present in human cell ?



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77. Which animal was mostly used for study of genetics?



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78. Which factor determines the sex In which syndrome, the chromosomal formula is $44A + XO$?



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79. In which sex of human , colour blindness appears in more numbers.



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80. The phenomenon of inheritance in which the father passes its sex-linked character to his daughter who in turn passes it to the grandson is called ----



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81. How many genotypes can be produced by two alleles T & t?



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82. How many Barr bodies are present in women with Down syndrome ?



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83. What is Chromosome number of a female with Turner's syndrome ? Who proposed the nutrition theory of sex determination ?



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84. Who first worked out theory of Heterogamy ?



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85. Fill in the blanks with correct answer:
Trisomy 21st chromosome in human male leads to _____ syndrome.



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86. Mendel's law of _____ explains the expression of only one form of the trait in F1 hybrid.



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87. The physical association between two genes on a chromosome is termed as _____ by Morgan.



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88. The number of Barr bodies present in human ovum is_____.



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89. Segregation of alleles, takes place during_____.



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90. _____proposed that the age or vigour of the parents is responsible for the determination of the sex of the offspring.



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91. The genes present on_____are responsible for determining the somatic characters of an organism.



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92. Fill in the blanks with correct answer(s): In the genic balance theory of Calvin Bridges, if the ratio of the number of X-chromosome to the number of sets of autosomes is 1 , then the offspring develops into_____.



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93. Number of autosome in human sperm is ---



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94. Haemophilia is caused by a sex-linked recessive gene located in the _____ chromosome.



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95. If a haemophilic man marries a normal woman, all the daughters will be _____.



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96. Thalassaemia is a hereditary blood disorder that results in the destruction of large number of _____ cells in blood.



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97. The genotype of a carrier haemophilia is _____.



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98. Red green colour blindness is a _____ character.



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99. In honey bee, the males are developed from _____.



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100. Chromosome number of individual with Down's syndrome is_____.



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101. Sex chromosomes of a female bird are represented by



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102. Klinefelter's syndrome is represented by genotype_____.



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103. Difference between:Autosomal disorder and Sex Chromosomal disorder.



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104. Distinguish between: Homozygous and heterozygous



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105. Difference between: Autosomal genes and Sex-linked genes.



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106. Turner's syndrome and Klinefelter's syndrome.



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107. Difference between: Haemophilia and Sickle cell anemia.



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108. Difference between: Haemophilia -A and Haemophilia-B.



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109. Differentiate between: Down's syndrome and Turner's syndrome



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110. Differentiate between: Phenotype and genotype



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111. Difference between: Sex influenced genes and Sex limited genes.



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112. Difference between: Dominant Character and Recessive Character.

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113. Write note on Thalasemia.

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114. What is gynandromorph?

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115. What do you mean by sex limited gene ?



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116. Sex influenced genes.



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117. What is Klinefelter syndrome ?



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118. Genic Balance Theory.



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119. What do you mean by Barr Body ?



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120. Pedigree analysis.



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121. What is Free martin?



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122. Why a man is unable to pass his sex-linked genes (X-linked) to his son? Explain.



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123. What is sex-chromosome? How does it differ from autosome?



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124. Describe the characteristics of sex-linked inheritance and write about Y-linked traits in humans beings. Name any two disorders that occur due to sex-linked inheritance.



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125. Non-disjunction.



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126. Down's syndrome.



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127. Write note on Sickle cell anaemia.



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128. What are the causes and symptoms of Turner's syndrome.



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129. What do you mean by Holandric gene?



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130. Haplo-diploidy mechanism of sex-determination





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131. Describe various environmental factors that help in sex-determination.



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132. What is criss-cross inheritance?



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133. What will be the phenotypic ratio of offspring from a marriage between colourblind father and normal mother ?



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134. What will be the phenotypic of offsprings from a marriage between a carrier mother and colour blind father ?



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135. What will be the phenotype of offsprings from a marriage between a normal man and a carrier haemophilic woman ?



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