BIOLOGY

BOOKS - SANTRA BIOLOGY (BENGALI ENGLISH)

HEREDITY AND VARIATION

Multiple Choice Questions

1. The monohybrid genotypic ratio 1 : 2 : 1 in F_2 generation indicates

A. Independent assortment

B. Dominance

C. Incomplete dominance

D. Segregation

Answer: D

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2. The ratio of phenotypes in F_2 of a monohybrid cross is

A. $1:2:1$

B. $2:1$

C. $3:1$

D. $9:3:3:1$

Answer: C

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3. The F_2 generation of a cross produced identical phenotypic and genotypic ratio. It is

not expected Mendelian result, and can be attributed to

A. Linkage

B. Independent assortment

C. Incomplete dominance

D. Homologous pairs

Answer: C

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4. The factors which represent the contrasting pairs of characters are called

A. Alleles

B. Dominant and recessive

C. Determinants

D. Homologous pairs

Answer: A

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5. Mendel selected pea as material for his experiment because

A. The flowers are self-pollinated

B. It is an annual plant with comparatively short life cycle

C. The number of seeds produced is quite large

D. All the above

Answer: D

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6. The first work on genetics was done by

A. Darwin

B. Mendel

C. Hugo de Vries

D. Lamarck

Answer: B

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7. The discipline which deals with the study of inheritance of characters is

A. Evolution

B. Cytology

C. Genetics

D. Darwinism

Answer: C

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8. How many types of gametes are expected from the organism with genotype AABBCC ?

A. Eight

B. Four

C. Two

D. One

Answer: D

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9. A haploid set of all the genes present in a gamete is called

A. Phenotype

B. Genome

C. Genotype

D. Linkage group

Answer: B

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10. Which of the following crosses would produce a genotype ratio 1 : 2 : 1 in F_2 ?

A. $Ab \times ab$

B. $Ab \times Ab$

C. $AB \times AB$

D. $ab \times ab$

Answer: A

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11. At which stage is the fate of genetic constitution of gametes finally decided ?

A. Anaphase-I

B. Anaphase-II

C. Metaphase-I

D. Interkinesis

Answer: B

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12. The phenomenon which defies the independent assortment is

A. Crossing over

B. Segregation

C. Linkage

D. Dominance

Answer: C

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13. Genotype phenotype concept was first proposed by

A. Johannsen

B. Punnet

C. Sutton and Boveri

D. Bateson

Answer: A

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14. Multiple alleles are present

A. At the same locus in one type of chromosomes

B. In different chromosomes

C. At the different loci in the same chromosome

D. None of the above

Answer: A

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15. Number of characters studies by Mendel in Pea was

A. 7

B. 4

C. 6

D. 5

Answer: A

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16. Mendel observed red flowers in F_1 when he crossed red and white because of

A. Law of independent assortment

B. Law of Segregation

C. Recessive gene

D. Dominance

Answer: D

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17. The genes for same trait present on nonhomologous chromosomes are

A. Linked genes

B. Alleles

C. Multiple alleles

D. None of these

Answer: D

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18. The genotypic ratio of a monohybrid cross will be

A. $2:1$

B. $1:1$

C. $1:2:1$

D. $3:1$

Answer: C

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19. Mendel's law of segregation is based upon the F_2 ratio

A. $3:1$

B. $1:2:1$

C. $9:3:3:1$

D. $1:2$

Answer: A

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20. Appearance of hidden character in some progeny of F_2 population indicates

A. Law of dominance

B. Law of Independent assortment

C. Law of purity of gametes

D. None of the above

Answer: C

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21. Mendel is popular for postulating

A. Linkage theory

B. Cell theory

C. Origin of species

D. Laws of inheritance

Answer: D

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22. A cross between unlike organisms is called

A. Back cross

B. Test cross

C. Hybrid

D. Heterosis

Answer: C

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23. Like begets like an important and universal phenomenon of life, is due to

A. Crossing over

B. Inheritance

C. Dominance

D. Eugenics

Answer: B

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24. Genes do not occur in pairs in

A. Gametes

B. Endsperm cells

C. Somatic Cell

D. Zygote

Answer: A

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25. A modified dihybrid mendelian ratio of 9 : 3 : 4 indicates

A. Complementary genes

B. Supplementary genes

C. Epistatic genes

D. Lethal genes

Answer: B

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26. A cross between hybrid and a parent is known as

A. Back cross

B. Test cross

C. Reciprocal cross

D. Monohybrid cross

Answer: A

27. Segregation of genes take place during

A. Anaphase

B. Prophase

C. Metaphase

D. Embryo formation

Answer: A

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28. Genetics deals with

A. Mutation

B. Heredity

C. Heredity and variations

D. Nucleus and cytoplasmic inheritance

Answer: C

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29. ABO blood grouping in humans is an example of

A. Multipe alleles

B. Pleiotropic gene

C. Multifactor inheritance

D. Polygenic inheritance

Answer: A

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30. ABO blood grouping shows

A. Polygenes

B. Codominant ganes

C. Dominant-recessive genes

D. Both codominant and dominant recessive genes

Answer: D

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31. Sum total of all genetic information in the breeding members of a population at a given time is known as

A. Genetic clone

B. Gene pool

C. Genome

D. Genetic drift

Answer: B

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32. A pleiotropic gene is one which

A. Supplements the effect of another gene

B. Requires another gene for expression

C. Affects more than one character

D. Affects one character

Answer: C

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33. The spread of genes from one breedign population to another by migration which may result in changes in gene frequency is called

A. Gene frequency

B. Gene flow

C. Genetic drift

D. None of the above

Answer: B

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34. A pleiotropic gene is

A. I^A

B. I^B

C. Hb^A

D. Hb^S

Answer: D

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35. A pure tall plant is reared in a soil poor in nutrition and reached the size of dwarf plant. If this plant is selfed, the phenotype in the F_1 generation is most likely to be

A. All dwarf

B. 50 % tall and 50 % dwarf

C. All tall plants

D. Data insufficient

Answer: C

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36. A gene that shows its effect on many characters is

A. Pleiotropic gene

B. Multifactor gene

C. Multiple gene

D. Polygene

Answer: A

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37. In a dihybrid cross, F_2 phenotypic ratio is 13 : 3. It is case of

A. Epistatic genes

B. Complementary genes

C. Incomplete dominance

D. Multigenic inheritance

Answer: A

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38. An individual having similar unit factors of a character is

A. Homozygote

B. Heterozygote

C. Hominant

D. Recessive

Answer: A

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39. Allele is

A. A muton

B. Special kind of gene

C. Form of a gene

D. Segment of gene

Answer: C

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40. A dihybrid cross is made between Yyrr and yyRR. In F_2 generation the ratio of parental to recombinant phenotype is

A. $10:6$

B. $9:7$

C. $6:10$

D. $7:9$

Answer: A

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41. In a monohybrid cross the ratio of F_2 true breeding dominant and true breeding recessive woul be

A. $25:25$

B. $25:75$

C. $75:25$

D. $50:50$

Answer: A

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42. Ratio of parental and recombinant phenotypes in a dihybrid cross would be

A. 0.256944444444444

B. $10:6$

C. $9:7$

D. $8:8$

Answer: B

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43. Double homozygous individuals in F_2 generation of a hihybrid cross would be

A. $2/16$

B. $9/16$

C. $6/16$

D. $1/16$

Answer: A

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44. F_1 plants crossed with dominant individuals will yield a progeny of

A. All dominant

B. All recessive

C. Dominant and recessive in the ratio 3 : 1

D. Dominant and recessive in the ratio 1 : 1

Answer: A

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45. Position of a gene on chromosome is called

A. Factor

B. Locus

C. Cistron

D. Nucleosome

Answer: B

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46. The ratio of 1 : 1 : 1 : 1 is obtained in case of

A. Dihybrid cross

B. Dihybrid test cross

C. Monohybrid cross

D. Monohybrid test cross

Answer: B

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47. The number of genotypes produced by gametes Y and y would be

A. 4

B. 3

C. 1

D. 12

Answer: B

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48. A phenotypic ratio not obtained by Mendel was

A. $1:1:1:1$

B. $1:2:1$

C. $3:1$

D. $9:3:3:1$

Answer: B

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49. Phenotype is influenced by

A. Ageing

B. Development

C. Environment

D. All the above

Answer: D

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50. Number of gamete types produced by genotype AaBbCcDd will be

A. 8

B. 16

C. 4

D. 32

Answer: B

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51. The ratio of 2 : 1 is observed in case of

A. Dominant-recessive epistasis

B. Complementary gene

C. Lethal gene

D. Suppressor gene

Answer: C

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52. Two plants of summer squash both having circular fruits are crossed F_1 plants had discoid fruits. F_2 generation has 3 types of fruits, discoid, circular and long in the ratio of

A. $7:6:3$

B. $9:6:1$

C. $12:3:1$

D. $9:3:4$

Answer: B

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53. Chromosome theory of inheritance was proposed by

A. Bover (1902)

B. Correus (1909)

C. Sutton (1902)

D. Both Sotton (1902) and Boveri (1902)

Answer: D

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54. A giant chromosome with a number of chromonemata

A. Heterochromosome

B. Lampbrush chromosome

C. Polytene chromosome

D. Supemumeracy chromosome

Answer: C

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55. Chromatid is

A. One half of chromosome

B. Complete chromosome

C. Haploid chromosome

D. Duplicate chromosome

Answer: A

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56. Gene for colour blindness in man is located on

A. Y-chromosome only

B. X-chromosome only

C. Either X or Y chromosome

D. Both X and Y chromosome

Answer: B

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57. A somatic cell in human male contains

A. Only one sex linked gene of each character

B. Two genes for every sex linked character

C. No genes for on sex chromosome

D. Genes only on sex chromosome

Answer: A

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58. Which of the following disease is sex linked ?

A. Hepatitis

B. Leukemia

C. colour blindness

D. Malignancy

Answer: C

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59. Chromosomal constitution in human female can best be written as

A. 44+2

B. 44A + XX

C. 46

D. 44A + XY

Answer: B

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60. The genes for the eye colour and six of the wing in Drosophila are located on the same chromosome. They can be separated by

A. Crossing over

B. Non-disjunction

C. Hybridization

D. Not be separated at any stage

Answer: A

61. The chromosomes other that sex chromosome are called

A. Heterosomes

B. Autosomes

C. Karyosomes

D. None of the above

Answer: B

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62. A linkage group is defined as

A. All the genes located on the same chromosome

B. Different groups of genes present on different chroosome

C. All the linked genes of a chromosomal pair

D. None of the above

Answer: C

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63. A phenomenon which works opposite to the linkage is

A. Mutation

B. Segregation

C. Crossing over

D. Independent assortment

Answer: C

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64. Linkage in Drosophila was reported

A. Correns

B. Morgan

C. Mendel

D. None of these

Answer: B

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65. Crossing over occurs at

A. Metaphase II of meiosis

B. Four-strand stage of pachytene

C. Two-strand stage during zygotene

D. Single- strand stage of chromosome during prophase

Answer: B

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66. The linked characters would always inherit together till they are

A. Separated due to crossing over

B. Mutated

C. Delinked due to segregation

D. Masked by dominance

Answer: A

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67. The term coupling and repulsion signify the same phenomenon which is termed

A. Linkage

B. Disjunction

C. Synapsis

D. Non-disjunction

Answer: A

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68. A colour blind man marries a normal women whose father was colour blind. What percentage of children is expected to be colour blind ?

A. 1

B. 0.75

C. 0.5

D. 0.25

Answer: C

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69. The genes of different traits located on different loci on the same chromosome are

A. Linked

B. Mutated

C. Pleiomorphic

D. Alleles

Answer: A

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70. The frequency of crossing over would be higher if

A. Two genes are located on the same chromosome

B. Two genes are far apart on a chromosome

C. Two genes are located closely

D. None of the above

Answer: B

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71. Plotting of specific genes on the chromosome is known as

A. Genetic map

B. Linkage map

C. Chromosome map

D. All the above

Answer: D

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72. Linkage in Drosophila was first discovered by

A. Mendel

B. Bridges

C. Morgan

D. Bateson and Punnet

Answer: C

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73. Maize has 10 pairs of chromosomes. How many linkage groups does it have ?

A. 5

B. 10

C. 20

D. 40

Answer: B

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74. Crossing over may result into

A. Genomatic mutation

B. Genetic recombination

C. Gene mutation

D. None of the above

Answer: B

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75. In flowering plants meiosis occurs at the time of

A. Formation of embryo

B. Formation of endosperm

C. Formation of pollens

D. Germination of seed

Answer: C

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76. The number of Barr bodies in Turner syndrome is

A. 0

B. 3

C. 2

D. 1

Answer: A

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77. Which one is homogametic ?

A. Human male

B. Human female

C. Human embryo

D. Human child

Answer: B

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78. XX-XO sex chromosome complement occurs in

A. Honey bee

B. Cockroach

C. Chimpanzee

D. Human being

Answer: B

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79. In human males, some recessive genes express their effect because they have

A. Single genome

B. Only two sex chromosomes

C. Only one X-chromosome

D. Only one Y-chromosome

Answer: C

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80. An exchange of segments between the two non-homologous chromosome is called

A. Translocation

B. Inversion

C. Polyploidy

D. Chromosome aberration

Answer: A

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81. A sudden or spontaneous change in the structure and action of a particular gene is called

A. Mutation

B. Variation

C. Linkage

D. Allelomorph

Answer: A

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82. Illegitimate crossing over is another term for

A. Reciprocal translocation

B. Transversion

C. Transition

D. None of the above

Answer: A

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83. Who induced mutation by X-ray irradiation in fruitfly for the first time

A. H.J. Muller

B. Bateson

C. Morgan

D. de Vries

Answer: A

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84. Mutations do not result in

A. Death of organism

B. Hybrid vigour

C. Better progenies

D. Change in genetic constitution of the cell

Answer: B

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85. A monosomic organism can best be represented as

A. 2n +2

B. 2n + 1

C. 2n-1

D. n + 1

Answer: C

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86. What term is applied to the gene mutation where a base is replaced by another base ?

A. Euploidy

B. Aneuploidy

C. Uplication

D. Substitution

Answer: D

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87. Nullisomy is the term used for the condition when an organism has

A. A complete set of chromosomes except one homologous pair

B. One chromosome less than normal

C. An additional chromosome

D. None of the above

Answer: A

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88. The mutation which returns to the original state is called

A. Lethal mutation

B. Reversible mutation

C. Abnormal mutation

D. Backward mutation

Answer: B

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89. Mutations were first induced in Drosophila by the use of

A. DDT

B. X-ray

C. UV-rays

D. High temperature

Answer: B

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90. Mutations are

A. Seldom useful

B. Always harmful

C. Always useful

D. May be useful of harmful

Answer: D

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91. The frequency of mutations in nature is one in

A. 1×10^{12}

B. 1×10^{-12}

C. 1×10^{5}

D. 1×10^{-5}

Answer: C

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92. Which of the following is not an aneuploid ?

A. $2n - 1$

B. $2n + 2$

C. Monoploid

D. Trisomic

Answer: C

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93. The mutations which prove fatal for the organism are called

A. Induced

B. Lethal

C. Delterious

D. Spontaneous

Answer: B

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94. The frequency of mutation in a species can be increased by the use of

A. UV-rays

B. X-rays

C. Nitrous acid

D. All the above

Answer: D

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95. Mutagens are

A. Genes that reulate mutations

B. The agents which cause mutations

C. The genes which cause mutate

D. The organism which show mutation.

Answer: B

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96. Down's syndrome is a typical case of

A. Monosomy

B. Nullisomy

C. Trisomy

D. Gene mutation

Answer: C

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97. A trisomy individual has

A. One pair of extra chromosomes

B. Two extra charomosome

C. One less chromosome

D. One extra chromosome

Answer: D

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98. The killer chemical secreted by Kappa particles is

A. Secretion

B. Poky

C. Plasmon

D. Paramoecin

Answer: D

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99. Shell coiling in Limnaea is an example of

A. Predetermination

B. Daueromodification

C. Maternal inheritance

D. Biparental inheritance

Answer: A

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100. Male sterile lines were first discovered in

A. Sunflower

B. Onion

C. Maize

D. Wheat

Answer: C

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101. Kappa particles are present in

A. Zea mays

B. Mirabilis jalapa

C. Paramoecium aurelia

D. Limnaea peregra

Answer: C

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102. Cytoplasmic inheritance differs from nuclear inheritance in the absence of

A. Effect on backcrossing

B. Biparental contribution

C. Similarity of reciprocal crosses

D. All the above

Answer: D

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103. Length of X-chromosome is

A. $5.0 - 5.5\mu m$

B. $6.5 - 7.5\mu m$

C. $5.0 - 5.6\mu m$

D. $8.5 - 9.5\mu m$

Answer: A

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104. Length of Y-chromosome is

A. $5.0\mu m$

B. $3.0\mu m$

C. $4.0\mu m$

D. $2.0\mu m$

Answer: D

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105. XY-chromosomes are

A. Heteromorphic

B. Homomorphic

C. Heterologous

D. Both a and c

Answer: A

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106. Percentage of colour blindness in white female population is

A. 2.3%

B. 0.5%

C. 4.5%

D. 0%

Answer: B

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107. Theory of heterogamesis for sex determination was proposed by

A. Darwin

B. Morgan

C. Bridges

D. Correns

Answer: D

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108. Y-chromosome is

A. Telocentric

B. Acentric

C. Acrocentric

D. Submetacentric

Answer: C

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109. X-chromosome is

A. Acentric

B. Acrocentric

C. Metacentric

D. Telocentric

Answer: C

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110. Who discovered sex-linked inheritance ?

A. Mc Clung

B. Bridges

C. Morgan

D. Wilson and Stevens

Answer: C

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111. In protanopia, a person cannot distinguish

A. Blue colour

B. Red colour

C. Green colour

D. Blue and green colour

Answer: B

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112. Colour blindness in which all colours appear grey is

A. Protanopia

B. Deuteranopia

C. Dichromatism

D. Monochromatism

Answer: D

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113. A character is transmitted from father to daughter and from there to grandsom. It is

A. Criss cross inheritance

B. Dominant inheritance

C. Holandric inheritance

D. Polygenic inheritance

Answer: A

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114. Females seldom become bald as they lack

A. Male sex hormone

B. Y-chromosome

C. The gene for baldness

D. All the above

Answer: A

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115. Down's syndrome is caused by the presence of extra chromosome number

A. Y

B. 21

C. X

D. 22

Answer: B

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116. In Down's syndrome the chromosome number in each cell of body is

A. 47

B. 48

C. 45

D. 49

Answer: A

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117. A person having Klinefelter's syndrome is characterized by

A. Having both male female sex organs

B. Female internal sex organs and male external sex organ

C. Male with some secondary sexual characters of female

D. Female with some secondary sexual characters of male

Answer: C

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118. The sex chromosome complement of Turner's syndrome is

A. XYY

B. XXY

C. YO

D. XO

Answer: D

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119. A supermale has a genetic constitution of

A. XXY

B. XYY

C. XY

D. XXYY

Answer: B

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120. In Drosophila the XXY constitution determines

A. Femaleness

B. Maleness

C. Intersex

D. Both b and c

Answer: A

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121. A sex-linked disorder is

A. Albinism

B. Phenylketonuria

C. Hemophilia

D. Sickle cell anaemia

Answer: C

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122. Alzheimer disease is associated with deficiency of

A. Dopanime

B. Glutamic acid

C. GABA

D. Acetylcholine

Answer: D

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123. Human blood grouping is called ABO instead of ABC because O signifies

A. No antigen

B. Overdominance

C. One antibody

D. Other antigen

Answer: A

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124. Which of following genotype does not produce any oligosaccharide on the surface of RBCs ?

A. $I^A I^A$

B. $I^B i$

C. $I^A I^B$

D. I, I

Answer: D

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125. Which condition of zygote cell will lead to birth of a normal human female child

A. One X-chromosome

B. One X and one Y chromosome

C. Two X-chromosomes

D. One Y-chromosome

Answer: C

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Choose More Than One Correct Answers

1. Which of the these are numerical aberations of chromosome

A. Deletion

B. Aneuploidy

C. Substitution

D. Euploidy

Answer: B::D

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2. Structural alterations in chromosomes are

A. Translocation

B. Trisomy

C. Inversion

D. Nullisomy

Answer: A::C

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3. Mendel's Law of inheritance

A. Co-dominance

B. Independent assortment

C. Segregation

D. Pleiotropy

Answer: B::C

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4. The traits that follow polygenic inheritance are

A. Skin colour

B. Body height

C. Sex determination

D. Disease resistance

Answer: A::B

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5. Which of the following scientists have contributed to the discovery of structural organization of chromosome

A. Flemming

B. Mendel

C. Kornberg

D. A. Klug

Answer: C::D

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6. Which of the following are histone proteins associated with DNA packaging ?

A. H1

B. H3

C. H5

D. H2

Answer: A::B

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7. Euchromatin shows which of the following characters

A. It takes light stain in interphase

B. It carries active genes

C. Early replication occurs at this region

D. Transcription does not occur in this region

Answer: A::B::C

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8. Chromosome map can provide the following informations

A. Relative distance between linked genes

B. Dominance or recessiveness of the genes

C. Actual position of the genes on a chromosome

D. Whether they are present on autosomes or sex chromosome

Answer: A::C

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9. Which of these are sex linked disorders in man

A. Polio

B. Colourblindness

C. Haemophilia

D. Albinism

Answer: B::C

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10. Which of the following are autosomal recessive disorders

A. Ichthyosis

B. Albinism

C. Cystic fibrosis

D. Phenylketoneuria

Answer: B::C::D

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Fill In The Blanks

1. Uniparenteral organisms are _____.

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2. Gametes are formed from _____ cells.

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3. A _____ test is a test for significance.

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4. The factor expressed in F_1 generation is the _____ factor.

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5. A test cross show the _____ ratio of progeny phenotype.

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6. _____ demostrated the inheritance of skin colour of Negroes and Whites in U.S.

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7. _____ and _____ first observed plasmid DNA.

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8. Barr body was first observed by _____ in _____.

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9. Pairing of homologous chromosome is called _____.

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10. Colourblindness may be of two types _____ and _____.

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Mention True Or False

1. Autosome determine sex in organisms.

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2. Longest chromosome is observed in Trillium.

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3. Cystic fibrosis occur due to trinucleotide deletion.

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4. Klinefelter man has XXX genotype.

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5. X inactivation occurs by mutation.

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6. Morgan was a student of Sturtevant.

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7. Transmission of colourblindness in X linked.

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8. Ichthyosis is a Y-linked disorder.

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9. Skip of generation occur in sex linked recessive traits.

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10. Hemophilia is also known as bleeder's disease.

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Very Short Answer Type Questions

1. What are uniparental organisms with similar characters called ?

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2. Gametes are formed from which type of special cells ?

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3. What is the conditio called when one chromosome is added to the diploid set ?

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4. Deletion or insertion of a base may lead to which type of mutation ?

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5. The mechanism of flow of character through generatons was first elucidated by whom ?

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6. When was Mendel born ?

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7. Mendel used which organism as his experimental sample ?

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8. What were the two contrasting colours of flower considered by Mendel ?

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9. What is the recessive trait in Drosophila against the normal body colour grey ?

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10. What is the ratio of progenies obtained in case of a cross between a heterozygous dominant and a homozygous reccessive ?

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11. Give an example of a plant which shows incomplete dominance in flower colour ?

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12. Give an example of co-dominance in nature ?

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13. What are antigens also known as ?

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14. Who proposed the chromosomal theory of inheritance ?

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15. What is the genetic defect that affects the connective tissue protein fibrillin, called ?

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16. King goerge III of England was affected by which autosomal, pleiotropic disease ?

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17. What is the genetic component of Parvo virus ?

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18. Give an example of a dsRNA virus ?

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19. Who discovered plasmid DNA ?

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20. What is the other name of sex chromosome ?

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21. Who is proposed the Solenoid model ?

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22. During anaphase, spindle microtubules attaches with which part of chromosome ?

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23. What is the chromosome called where centromere is absent ?

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24. Which is the most abundant amino acids present in histone proteins ?

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25. What is the sex chromosome consitution in Klinefelter syndrome ?

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26. Who proposed the dosage compensation theory ?

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27. What is the 2n no. of chromosomes in honey bee ?

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28. Who discovered the phenomenon of linkage ?

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29. What is the inheritance from grandfather to grandsom called ?

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30. What does a square represent in a pedigree ?

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31. Apart from X chromosome, name another gene whose absence can cause abnormalities in Turner's syndrome ?

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32. What is m.u also named as ?

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Short Answer Type Questions

1. Define heredity ?

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2. Define species ?

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3. What do you mean by phenocopy ?

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4. Mention the Mendelian principles.

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5. Define law of Independent Assortment.

Watch Video Solution

6. What do you mean by incomplete dominance ?

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7. Name the four skin colour known in rabbits ?

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8. What is pleiotropy ?

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9. Who are known as biometricians ?

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10. What does chromosome theory of inheritance suggest ?

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11. What are autosomes ?

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12. What are acrocentric chromosome ?

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13. Name the different types of histone proteins. Mention the arginine rich histone

proteins among them.

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14. Define euchromatin ?

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15. What is Barr body ?

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16. What does Lyon's hypothesis say about dosage compensation ?

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17. What are pseudoautosomal genes ?

Watch Video Solution

18. Define linkage ?

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19. What is crossig over ?

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20. What are DCO ?

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21. What are holandric genes ?

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22. What are the symptoms of heriditary Xanthinuria ?

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23. Why did Mendel choose pea plants as his experimental organism ?

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24. Define and explain the Law of Unit Character proposed by Mendel.

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25. Give the schematic representation of the monohybrid experiment of Mendel showing segregation of genes.

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26. Give the checker board of a dihybrid cross.

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27. Define test cross with an example.

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28. Give at least three reasons behind Mendel's success in formulating Law of inheritance.

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29. What are the important funtions of chromosomes ?

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30. Differentiate between autosome and sex chromosome.

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31. Mention the different types of chromosomes based on the location of centromere.

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32. Differentiate between chromatid and chromatin.

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33. Define heterochromatin, mention its types.

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34. Give at least three evidences in support of X-chromosome inactivation and dosage compensation.

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35. What are the basic concepts of linkage was proposed by Mendel?

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36. What are informations obtained by a linkage map ?

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37. If a normal man marries a carrier female for colour blindness, what is the chance of their male progeny to be colourblind.

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38. Predict the result of marriage between a hemophillic male with a normal femle.

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39. Mention the symptoms of Klinefelter's syndrome.

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40. Mention the properties shown by sex linked recessive trait.

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41. In a pedigree, how can one determine that the inherited trait in autosomal recessive trait.

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42. What are mosaic Turner.

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Long Answer Type Questions

1. Briefly describe the protocol of Mendelian experiment.

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2. What do you mean by polygenic inheritance ? Mention experiment performed by Nilsson and Ehle.

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3. Mention few evidences in support of chromosome theory of inheritance.

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4. What are the main structures exhibited by metaphase chromosome ?

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5. Differentiate between prokaryotic and eukaryotic chromosome.

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6. What is meant by parallelism between genes and chromosomes ?

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7. What factors according to the modern concept on sexual dimorphism, promote the sex determination ? Explain with example.

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8. Describe the pathway of sex determination in mammals involving DSS and MPGs.

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9. Briefly describe the mechanism of sex determination in birds.

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10. What is the mechanism of crossing over ? Explain with a proper diagram.

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11. Describe the inheritance pattern of α and β thalassemia.

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12. Write a brief account of Down's syndrome.

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