



BIOLOGY

BOOKS - UNIVERSAL BOOK DEPOT

1960 BIOLOGY (HINGLISH)

PRINCIPLES OF INHERITANCE AND
VARIATION

Principles Of Inheritance And Variation

1. Mendelism is related with

A. Heredity in living beings

B. Meiosis during sexual reproduction

C. Mutton in living organisms

D. None of the above

Answer: A



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2. Branch of biology dealing with heredity and variation is

A. Geobotany

B. Sericulture

C. Genetics

D. Evolution

Answer: C



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3. Term 'genetics' was given by

A. Mendel

B. Morgan

C. Bateson

D. Boveri

Answer: C



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4. The first great "geneticist" was

Or

Who is considered as father of genetics

A. Engler

B. Mendal

C. Schwann

D. Miller

Answer: B



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5. Mendel was born in

A. 17th century

B. 18th century

C. 19th century

D. 8th century

Answer: C



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6. Mendel was the native of

A. France

B. Sweden

C. India

D. Austria

Answer: D



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7. Organism with two different alleles is

A. Heterozygous and homozygous

B. Heterozygous for the allele

C. Homozygous for the allele

D. None of these

Answer: B



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8. In the first step of monohybrid cross experiment, Mendel selected Pea plants which were

A. Pure tall as male and pure dwarf as female

B. Pure tall as female and pure dwarf as male

C. Heterozygous tall as male and pure dwarf as female

D. Heterozygous tall as female and pure dwarf as male

Answer: B



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9. Which one of the following cannot be explained on the basis of Mendel's Law of dominance

A. Factors occur in pairs

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

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

D. Alleles do not show any blending and both the characters reappear as such in

F_2 generation

Answer: D



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10. A man having the genotype $EEFfGgHH$ can produce P number of genetically different sperms, and a woman of genotype $liLLMnNn$ can generate Q number of genetically different eggs. Determine the values P and Q

A. $P=4, Q=4$

B. $P=4, Q=8$

C. $P=8, Q=4$

D. $P=8, Q=8$

Answer: B



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11. How many types of gamete will be produced by an individual having genotype $AaBbcc$:

A. Four

B. Three

C. Two

D. One

Answer: A



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12. In 1900 AD, three biologists independently rediscovered Mendel's principals. They were:

A. De Veries , Correns and tschermark

B. Sutton , Morgan and Bridges

C. Avery ,McLeod and McCarthy

D. Bateson ,Punet and Bridges

Answer: A



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13. When a dihybrid cross is fit into a Punnett square with 16 boxes, the maximum number of different phenotypes available are:

A. 8

B. 4

C. 2

D. 16

Answer: B



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14. In a monohybrid cross between two heterozygous individuals, the number of pure

homzygous individuals obtained in F_1
generation is:

A. 2

B. 4

C. 6

D. 8

Answer: A



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15. In Mendel's experiment how many different kinds of seeds are produced from a short plant with wrinkled seeds ($ttrr$)?

A. 9

B. 4

C. 2

D. 1

Answer: D



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16. 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 case is

A. $\frac{1}{4}$

B. $\frac{1}{8}$

C. $\frac{1}{16}$

D. $\frac{3}{16}$

Answer: D



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17. Two pea plants were subjected cross pollination. Of the 183 plants produced in the next generation, 94 plants were found to be tall and 89 plants were found to be dwarf. The genotypes of the two parental plants are likely to be:

A. TT and tt

B. Tt and Tt

C. Tt and tt

D. TT and TT

Answer: C



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18. A homozygous sweet pea plants 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 genototype does not appear in its progeny

A. $Rrrr_0$

B. RrR_0r_0

C. Rrr_0r_0

D. rrR_0r_0

Answer: C



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19. Ratio of progeny when a red coloured heterozygote is crossed with a white coloured plant in which red colour is dominant to white colour:

A. 3:1

B. 1:1

C. 1:2:1

D. 9:3:3:1

Answer: B



20. 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. $\frac{3}{4}$

B. $\frac{1}{4}$

C. $\frac{1}{3}$

D. $\frac{1}{2}$

Answer: B



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21. Which of the following represents a test cross?

A. $Ww \times WW$

B. $Ww \times Ww$

C. $Ww \times ww$

D. $WW \times WW$

Answer: C



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22. How many type of genotypes are formed in F_2 Progeny obtained from self - Pollination of a dihybrid of a dihybrid F_1

A. 6

B. 3

C. 9

D. 4

Answer: C



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23. Howmany types of gemete will be produced by an individual having genotype AaBbcc:

A. 1

B. 2

C. 3

D. 4

Answer: d



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24. In his classic experiment on Pea plants, Mendel did not use

A. Pod length

B. Seed shape

C. Flower position

D. Seed colour

Answer: A



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25. Mendel is famous for his work on

A. Pisum

B. *Drosophila*

C. *Neurospora*

D. *Oenothera*

Answer: A



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26. Which of the following mandel has selected for his experment

A. Garden pea

B. Pigeon pea

C. Sweet pea

D. Moong

Answer: A



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27. How many different kinds of gametes will be produced by a plant having the genotype AABbCC?

A. Nine

B. Two

C. Three

D. Four

Answer: B



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28. Mendel chose pea plants because they:

A. They were cheap

B. They were having seven pairs of contrasting characters

C. They were easily available

D. Of great economic importance

Answer: B



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29. In a population of 1000 individuals 360 belong to genotype AA, 480 to Aa and the

remaining 160 to aa Based on this data ,the frequency of allele A in the population is

A. 0.6

B. 0.7

C. 0.4

D. 0.5

Answer: A



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30. Test cross in plants or in *Drosophila* involves crossing

- A. Crossing the F_1 hybrid with a double recessive genotype
- B. Crossing between two genotypes with dominant trait
- C. Crossing between two genotypes with recessive trait
- D. Crossing between two F_1 hybrids

Answer: A



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31. what is the correct sequence of the following events ?

1. Formulation of the chromosome theory of inheritance
2. Experiments which proved that DNA is the genetic material
3. Mendel's law of inheritance

A. 1,3 and 2

B. 1,2 and 3

C. 3,1 and 2

D. 2, 1 and 3

Answer: C



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32. The term "genotype and gene" were coined by

A. H.J muller

B. T.Boveri

C. W.S sutton

D. W.L johanssen

Answer: D



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33. Select the correct statements from the ones given below with respect to dihybrid cross

A. Tightly linked gens on the same chromosome show very few recombinations

B. Tightly linked gens on the same chromosome show higher recombinations

C. Gens far apart on the same chromosome show very few recombinations

D. Genes loosely linked on the same chromosome show similar

recombinations as the tightly as the
tightly lined on es

Answer: A



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34. When both alleles express their effect on
being present together, the phenomenon is
called

A. Dominance

B. Codominance

C. Pseudominance

D. Amphidominance

Answer: B



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35. Which type of gametes are produced by

$RrYy$?

A. Ry , Ry , rY , ry

B. RY, RY, ry, ry

C. RY, RY, Yy, ry

D. Rr, RR, Yy, YY

Answer: A



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36. Heterozygous tall plant (Tt) is crossed with homozygous dwarf (tt) plant. Then what will be the percentage of dwarf plants in the next generation?

A. 0

B. 0.5

C. 0.25

D. 1

Answer: B



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37. The given Punnett's square represents to Pattern of inheritance in a dihybrid cross where yellow (Y) and round (R) seed condition

in dominant over white (y) and wrinkled (r)

seed condition

	YR	Yr	yR	yr
YR	F	J	N	R
Yr	G	K	O	S
yR	H	L	P	T
yr	I	M	Q	U

A plant of type 'H' will produce seeds with the genotype identical to seeds produced by the plants of

A. type M

B. type J

C. type P

D. type N

Answer: D



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38. The term ' allelmophic ' implies

A. Any two characters

B. A pair of contrasting characters

C. Sex linked characters

D. A pair of non -contrasting characters

Answer: A



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39. The allele are

- A. A pair of genes governing a specific character such as tallness or dwarfness or alter form of gene
- B. Multiple forms of genes
- C. Genes governing eye characters

D. Genes present in allosomes

Answer: B



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40. Alleles which show independent effect are called

A. Supplementary alleles

B. Codominant alleles

C. Epistatic alleles

D. Complementary alleles

Answer: A



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41. Different forms of a gene are called

A. Heterozygous

B. Complementary genes

C. Genotypes

D. Alleles

Answer: D



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42. A gene is said to be dominant, if

A. it is expressed only in heterozygous combination

B. It is expressed only in homozygous combination

C. It is expressed in both homozygous and heterozygous condition

D. It is expressed only in second generation

Answer: C



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43. when a true breeding pea plant that has yellow seeds is pollinated by a plant that has green seeds, all the F_1 plants have yellow seeds. This means that the allele for yellow is

Or

A character which is expressed in hybrid is called

A. Heterozygous

B. Dominant

C. Recessive

D. Lethal

Answer: B



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44. In Mendel's experiments with Garden Pea, round seed shape (RR) was dominant over wrinkled seeds (rr), yellow cotyledons (YY) was dominant over green cotyledons (yy). What are expected phenotypes in F_2 generation $RRYY \times rryy$?

- A. Only wrinkled seeds with green cotyledons
- B. Round seeds with yellow cotyledon and wrinkled seeds with yellow cotyledons
- C. Only round seeds with green cotyledons
- D. Only wrinkled seed with yellow cotyledons

Answer: B



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45. An organism with two identical alleles for a given trait is:

- A. Homozygous
- B. Segregating
- C. Dominant
- D. A hermaphrodite

Answer: A



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46. How many types of genetically different gametes will be produced by a heterozygous plant having the genotype AABbCc?

- A. Two
- B. Four
- C. Six
- D. Nine

Answer: B



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47. When two odd characters are present in a gene, this is known as

- A. Bigamous
- B. Heterozygous
- C. Polymorphic
- D. Heteromorphic

Answer: B



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48. A tall pea plant with round seeds (TTRR) is crossed with a dwarf wrinkle seeded plant (ttrr). F_1 has tall plants with rounded seeds. What is the proportion of dwarf plants with wrinkled seeds in F_2 generation

A. $(1) / 4$

B. $(1//16)$

C. 0

D. (1 / 2)

Answer: C



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49. In pea, yellow seed colour is dominant over green colour. Heterozygous Yellow seeded plant is crossed with green seeded plant. The ratio of yellow to green seeded offspring will be

A. 50:50

B. 9:1

C. 1:3

D. 3:1

Answer: A



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50. The dwarfness in plants in F_1 generation is

A. Recessive

B. Dominant

C. Both the above

D. None of the above

Answer: A



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

A. Crossing of one F_2 progeny with male parent

B. Crossing of one F_2 progeny with female

C. Studying the sexual behaviour with male parent

D. Crossing of one F_1 progeny with male parent

Answer: D



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52. When yellow round heterozygous Pea Plants are self fertilized, the frequency of occurrence of RrYY genotype among the offspring is

A. $(9/16)$

B. $(3/16)$

C. $(2/16)$

D. $(1/16)$

Answer: C



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53. Mendel's law is still true because it takes place in:

A. It takes in exually reproducing plants

B. it takes place in asexally in asexually reproducing plants

C. It takes place in both the above plants

D. It takes place in apomictic reproducing plants

Answer: A



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54. Character chosen by Mendel are located on how many chromosomes

A. 4

B. 14

C. 7

D. 49

Answer: A



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55. Which of the following are dominant characters according to Mendel?

- A. Dwarf plant and yellow fruit f
- B. Terminal fruit and wrinkled seed
- C. White testa and yellow pericarp
- D. Green coloured pod and rounded seed\

Answer: D



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56. Mendel found that reciprocal crosses yielded identical results. From that he concluded

- A. There is independent assortment of trait
- B. Sex plays a role in deciding the dominance of trait
- C. There is no dominance of any trait

D. Sex has no influence on the dominance of traits

Answer: D



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57. Test cross is used to check

A. Check heterozygosity in F_1 generation

B. Check heterozygous in F_2 generation

C. Check independent assortment

D. Check segregation

Answer: A



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58. In Mendel's experiment, the nature of seed coat, flower colour, position of flower, pod colour, stem height etc., are referred to as

A. Alleles

B. Genotypes

C. Phenotypes

D. All of these

Answer: C



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59. A collection of plants and seeds having diverse alleles of all the genes of a crop is called :

A. Genome

B. Herbarium

C. Gerplasm

D. Gene library

Answer: C



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60. Mendel enunciated

A. Two priciples of inheritance

B. Three priciples of inheritenace

C. Four principles of inheritance

D. Five principles of inheritance

Answer: B



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61. Which of the following match is correct

A. Independent assortment - segregation of factor

B. Lamarck - natural selection

C. Hatch and slack-chemiosmotic heory

D. Peter mitchell -proposed Z scheme

Answer: A



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62. The first law of mendel

A. Law of inhertance

B. Law of variation

C. Law of indepent assorment

D. Law of segregation

Answer: D



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63. An exception to Mendel's law is

A. Law of independent assortment

B. law of segregation

C. law of dominance

D. law of linkage

Answer: D



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64. If Mendel had studied 7 traits using a plant with 12 chromosomes instead of 14, he would have

- A. He could have mapped the chromosome
- B. He would have discovered the law of independent assortment

C. He would not have discovered the law of independent

D.

Answer: C



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65. Mendel's law of segregation was based on the separation of alleles in the garden pea during:

A. Polination

B. Embryonic develoment

C. Seed formation

D. Gamate formation

Answer: D



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66. A pure tall and a pure dwarf plant were crossed to produce offsprings. Offsprings were self crossed, then find out the ratio

between true breeding tall to true breeding dwarf?

A. 1 : 1

B. 3 : 1

C. 2 : 1

D. 1 : 2 : 1

Answer: A



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

A. Mitosis

B. Meiosis

C. none of the above

D.

Answer: D



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68. A cross between plants having RRYY and rryy composition will yield plants with:

- A. Round and yellow seeds
- B. Round and green seeds
- C. Wrinkled and green yellow seeds
- D. Wrinkled and green seeds

Answer: A



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69. Law of Mendel are valid for

- A. Asexual reproduction
- B. Sexual reproduction
- C. Vegetative reproduction
- D. All above

Answer: B



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70. Among the seven pairs of contrasting traits in pea plant as studied by Mendel, the number of traits related to flower, pod and seed respectively were

A. 2,2,2

B. ,2,2,1

C. 1,2,2

D. 1,1,2

Answer: A



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71. A cross in which an organism showing a dominant phenotype is crossed with the recessive parent in order to know its genotype is called:

- A. Monohybrid cross
- B. Back cross
- C. Test cross
- D. Dihybrid cross

Answer: C



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72. Some of the dominant traits studied by Mendel were

A. Round seed shape , constricted pod

shape and axial flower position

B. Green pod colour , inflated pod shape

and axial flower position

C. Yellow seed colour , violet flower colour
and green seed colour

D.

Answer: B



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73. A cross used to ascertain whether a dominant is homozygous or heterozygous is termed :

A. Linkage cross

B. Reciprocal cross

C. Test cross

D. Monohybrid cross

Answer: C



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74. In a dihybrid cross where two parents differ in two pairs of contrasting traits like seed colour yellow (YY) and seed colour green

(yy) weith seed shapewrikled (rr) the number of green colo0ured seeds (yy) among sixteen products of F_2 generation will be

A. 2

B. 4

C. 6

D. 8

Answer: B



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75. The genotypes of offspring in a genetic cross is called graphical representation to calculate the probability of all possible

- A. Pedigree analysis
- B. Karyotype
- C. Punnett square
- D. Chromosome map

Answer: C



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76. A pea plant parent having violet coloured flowers with unknown genotype was a plant having white coloured flowers in the progeny 50% of the flowers were violet and 50% were white. The genotype constitution of the parent having violet coloured flower was:

- A. Homozygous
- B. Merozygous
- C. Heterozygous
- D. Hemizygous

Answer: C



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77. In humans blue eye colour is recessive to brown eye colour. If a boy has brown eyes and mother blue-eyed, what would be phenotype of father ?

A. Block eye

B. Brown eye

C. Green

D. Blue eye

Answer: B



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78. When a cross is made between offspring and its homozygous dominant as

Or

When a plant of F_1 generation is crossed with homozygous dominant parents it is known as

A. Monohybrid cross

B. Dilybird cross

C. Back cross

D. Reciprocal cross

Answer: C



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79. The colour based contrasting traits in seven contrasting pairs, studied by Mendel in pea plant were

A. 1

B. 2

C. 3

D. 4

Answer: C



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80. Pure tall plant is crossed to dwarf plant. F_1 generation consists of only tall plants while F_2

generation has both tall and dwarf in ratio of 3:1. The phenomenon is due to

- A. Dominance
- B. Inheritance
- C. Co-dominance
- D. Heredity

Answer: A



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81. Which of the following is the genotypic ratio of Mendel's monohybrid cross

A. 1 : 3

B. 3 : 1

C. 1 : 2 : 1

D. 1 : 1 : 1 : 1

Answer: C



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82. In a monohybrid cross when F_1 is crossed with homozygous dominant parent then which type of offspring will obtain

A. Dominant :recessive 3:1

B. Only recessive

C. Dominant : recessive 1:1

D. NO recessive

Answer: D



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83. 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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84. Which of the following depicts the Mendel's dihybrid ratio

A. 3 : 1

B. 9 : 3 : 3 : 1

C. 9 : 7

D. 15 : 1

Answer: B



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85. F_2 generation in Mendelian cross showed that both genotypic and phenotypic ratios are same as 1 : 2 : 1. It represents a case of:

A. Co-dominance

B. Dilybird cross

C. Monohybrid cross with complete dominance

D. Monhybird cross with incomplate dominance

Answer: D



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86. Blue flowered and white flowered plant on crossing gave progeny of blue and white flowered in the ratio of 60:40 what ratio of blue and white is expected if the blue flowered are self pollinated

A. 76: 24

B. 40: 60

C. 52: 48

D. 84: 16

Answer: A



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87. Pure homozygous offsprings in a self hybrid cross in the F_2 generation will be

A. $1/2$

B. $1/4$

C. $1/8$

D. 1 / 16

Answer: C



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88. In mendelian monohybrid cross, phenotypic ratio in F_2 is 3:1 How many types of gametes are formed in F_1 generation

A. Only one type

B. Two types

C. Four types

D. Eight types

Answer: B



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89. When two genetic loci produce identical phenotypes in cis as well as in trans position ,they aare considered to be

A. Pseudo alleles

B. The parts of the same gene

C. Multiple alleles

D. Different genes

Answer: B



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90. If in a garden pea plant, a cross is made between red flowered and white flowered plants. What will be the phenotypic ratio in F_2 generation

A. 1 : 2 : 1

B. 9 : 3 : 3 : 1

C. 3 : 1

D. 1 : 3

Answer: C



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91. Test cross of dihybrid ratio is 1 : 1 : 1 : 1. It proves that

- A. F_1 hybrid produces four different progeny
- B. F_1 hybrid in homozygous
- C. Two different progeny are produced by P_1 parents
- D. None of these

Answer: A



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92. Mendel's principle of segregation means that the germ cells always receive:

- A. One pair of alleles
- B. One quarter of the genes
- C. One of the paired alleles
- D. Any pair of alleles

Answer: C



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93. Mendel crossed a pure white -flowered recessive pea plant with a dominant pure red-flowered plant .the first generation og hybrid from the cross should show

A. 50% white -flowered and 50% red -flowered plants

B. All red - flowered palnts

C. 75% red-flowered and 25% white -flowered plants

D. All white -flowered plants

Answer: B



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94. In Mendelism, linkage was not observed due to:

- A. Law of segregation
- B. Law of multiple factor hypothesis
- C. Law of independent assortment
- D. Law of dominance

Answer: C



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95. If dwarf pea plant was treated with Gibberelic acid. It grew as tall as the pure tall pea plant. If this treated plant is crossed with a pure tall plant then the phenotypic ratio of is likely to be

A. All dwarf

B. 50% dwarf 50% tall

C. 75% tall 25% dwarf

D. All tall

Answer: D



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96. In a test cross involving F_1 dihybrid flies, more parental-type offspring were produced than the recombinant-type offspring. This indicates:

- A. The two genes are located on two different chromosomes
- B. Chromosomes failed to separate during meiosis
- C. The two genes are linked and present on the same chromosomes
- D. Both of the characters are controlled by more than one gene

Answer: C



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97. A farmer crossed a walnut combed chicken with a single combed one and obtained all walnut combed chickens in F_1 . The genotype of the parents was

A. $RrPp \times rrpp$

B. $RRPP \times rrpp$

C. $Rpp \times rrpp$

D. $RRPp \times rrpp$

Answer: B



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98. When heterozygous red (dominant) flower is crossed with white flower the progeny would be

A. 350 red : 350 white

B. 450 red : 250 white

C. 350 red : 320 white

D. None of these

Answer: A



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99. A double heterozygous tall plant with yellow colour (colour of cotyledon) is selfed the ratio of dwarf plants with green cotyledon is

Probability of genotype TTrr in F_2 generation of a dihybrid cross is

A. $\frac{1}{16}$

B. $\frac{1}{4}$

C. $\frac{1}{6}$

D. $\frac{2}{16}$

Answer: A



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100. In sweet pea plant the presence of dominant C and P genes is essential for development of purple colour. The ratio of plants producing flowers of different colours in the progeny of the cross $Cc Pp \times Cc pp$ will be

A. 2 white and 6 purple coloured flowers

B. 2 purple and 6 white coloured flowers

C. 3 white and 5 purple coloured flowers

D. 2 purple and 6 white coloured flowers

Answer: D



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101. When a tall and red flowered individual individual is crossed with a dwarf and white flavoured individual, phenotype in the progeny

is dwarf and white. What will be the genotype of tall and red flowered individual or

Which genotype represents a true dihybrid condition

A. TTRR

B. TtRR

C. TtRr

D. TTRr

Answer: C



102. Normal maize has starchy seeds which remain smooth when dry. A mutant form has sugary seeds which go crinkled when dry. When a mutant was crossed with a normal plant, an F_1 was produced which had smooth seeds. What would be the relative ratios of the different seed types, if the F_1 was allowed to self

A. 1 smooth : 3 sugary

B. 3 smooth : 1 surgery

C. 1 smooth : 1 sugary

D. All sugary

Answer: B



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103. If a plant heterozygous for tallness is selfed, the F_2 generation has both tall and dwarf plants. This proves the principle of
or

when heterozygous tall plants are self-pollinated
than tall and dwarf plants are obtained this is
explained to

- A. Dominance
- B. Segregation
- C. Independent assortment
- D. Incomplete dominance

Answer: B



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104. From a single ear of corn, a farmer planted 200 kernels which produced 140 tall and 40 dwarf plants. The genotype of these offsprings are most likely

- A. TT, Tt and tt
- B. TT and tt only
- C. TT and Tt only
- D. Tt and tt only

Answer: A



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105. From a cross $Aa\ BB \times aa\ BB$, following genotypic ratio will be obtained in F_1 generation

A. $1\ Aa\ BB : 1\ aa\ BB$

B. $1\ Aa\ BB : 3\ aa\ BB$

C. $3\ Aa\ BB : 1\ aa\ BB$

D. All $Aa\ BB : \text{No } aa\ BB$

Answer: A



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106. Hybrid breakdown refers to the condition when offspring are physiological inferior to the following generation

A. F_1

B. F_2

C. P_1

D. All of these

Answer: A



107. If the cells of an organism heterozygous for two pairs of character via. Aa and Bb undergo meiosis, what will be the genotypes of the gamets produced

- A. Aa and Bb
- B. AB, aB, Ab and ab
- C. aB and Ab
- D. Ab and ab

Answer: B



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108. When AABB and aabb are crossed, in F_2 generations the ratio will be

A. 1 / 16

B. 2 / 16

C. 8 / 16

D. 4 / 16

Answer: D



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109. In a typical mendellian cross which is a dihybrid cross, one parent is homozygous for both recessive traits. In the F_2 generation, both parental combinations and recombination appear. The phenotypic ratio of parental combination appear. The phenotypic ratio of parental combinations to recombinations is

A. 10:6

B. 12:4

C. 9:7

D. 15:1

Answer: A



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110. In Mendelian dihybrid cross, when heterozygous Round Yellow are self crossed,

Round Green offsprings are represented by the genotype

A. RrYy,RrYY,RRYy

B. RrYy,RrYY,RRYy

C. rrYy,rrYY

D.

Answer: D



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111. If a cross is made between AA and aa, the nature of F_1 progeny will be

- A. Genotypically AA, phenotypically a
- B. Genotypically Aa, phenotypically a
- C. Genotypically Aa, phenotypically A
- D. Genotypically aa, phenotypically A

Answer: C



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112. When a tall plant with rounded seeds (TTRR) is crossed with a dwarf plant with wrinkled seeds (ttrr), the F_1 generation consists of tall plants with rounded seeds. How many types of gamets an F_1 plant would produce

A. One

B. Three

C. Four

D. Eight

Answer: A



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113. In a plant, red fruit (R) is dominant over yellow fruit (r) and tallness (T) is dominant over shortness (t). If a plant with RRTt genotype is crossed with a plant that is rrtt

A. 75% will be tall with red fruit

B. All the offspring will be tall with red fruit

C. 25% will be tall with red fruit

D. 50% will be tall with red fruit

Answer: D



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114. A self-fertilizing trihybrid plant forms

A. 8 different gametes and 16 different
zygotes

B. 8 different gametes and 32 different
zygotes

C. 8 different gametes and 64 different zygotes

D. 4 different gametes and 16 different zygotes

Answer: C



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115. Match the genetics phenomena with their respective ratios

Column - I**Column - II**

- | | |
|------------------------------|------------------|
| A. Inhibitory gene ratio | 1. 9 : 3 : 4 |
| B. Complementary gene ratio | 2. 1 : 1 : 1 : 1 |
| C. Recessive epistasis ratio | 3. 12 : 3 : 1 |
| D. Dihybrid test cross ratio | 4. 13 : 3 |
| E. Dominant epistasis ratio | 5. 9 : 7 |

A. A-5,B-4,C-3,D-2,E-1

B. A-4,B-5,C-1,D-2,E-3

C. A-1,B-2,C-4,D-3,E-5

D. A-1,B-2,C-4,D-3,E-5

Answer: B



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116. If a tall plant is crossed with a dwarf plant and obtained progeny is half tall and half dwarf plants. Then the genotype of progeny will be

A. $T \times$

B. $Tt \times$

C. $T \times Tt$

D. $Tt \times Tt$

Answer: B



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117. Mendel's law of independent assortment is applicable for

- A. All genes in all organism
- B. All genes of pea plant only
- C. All linked genes only
- D. All non-linked genes only

Answer: D



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118. Hybrid vigour is induced by

A. Clonal selection

B. Crossing of plant

C. Crossing two plants

D. Species differentiation

Answer: C



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

A. 1 : 2 : 1 :: Tall homozygous : Tall

heterozygous : Dwarf

B. 1 : 2 : 1 :: Tall heterozygous : Tall

homozygous : Dwarf

C. 3 : 1 :: Tall : Dwarf

D. 3 : 1 :: Dwarf : Tall

Answer: A



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120. A true breeding plant is

- A. Always homozygous recessive in its genetic constitution
- B. One that is able to breed on its own
- C. Produced due to cross pollination among unrelated plants

D. Near homozygous and produces offspring of its own kind

Answer: D



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121. Which one form those given below is the periods for Mendel's hybridization experiments

A. 1856-1863

B. 1840-1850

C. 1857-1869

D. 1870-1877

Answer: A



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122. Among the following characters, which one was not considered by Mendel in his experiment on pea

A. Stem- Tall of dwarf

B. Trichomes -Gladular or non-glaulat

C. Seed- Green or yellow

D. Pod -Inflated or Constricted

Answer: B



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123. Some genomic representation of skin colour are given below

(i) AA bb CC (ii) AA bb cc

(iii) AA BB CC (iv) aa bb cc

Which of the options is correct for showing the darkness of colour of the skin in decreasing order

A. $i \rightarrow iv \rightarrow ii \rightarrow iii$

B. $iii \rightarrow ii \rightarrow i \rightarrow iv$

C. $iii \rightarrow i \rightarrow ii \rightarrow iv$

D. $i \rightarrow iii \rightarrow ii \rightarrow iv$

Answer: C



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124. Fruit colour in squash is an example of

A. Complementary genes

B. Inhibitory genes

C. Recessive epistasis

D. Dominant epistasis

Answer: D



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125. Leaf colour in *Mirabilis jalapa* is an example of

A. Non-Mendelian inheritance

B. Mendilian inheritance

C. Chemical inheritance

D. Bot (b) and (c)

Answer: A



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126. Genes present in the cytoplasm of eukaryotic cells, are found in

A. Mitochondria and inherited via egg cytoplasm

B. Lysosomes and peroxisomes

C. Golgi bodies and smooth endoplasmic reticulum

D. Plastids and inherited via male gamete

Answer: A



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127. *Lathyrus odoratus* is an example of which of the following genes

- A. Supplementary genes
- B. Complementary genes
- C. Lethal genes
- D. Condominant genes

Answer: B



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128. Besides activating the egg, another role of a sperm is to carry to egg

A. RNA

B. Mitochondria

C. DNA

D. Ribosomes

Answer: C



Watch Video Solution

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

A. Fruit shape in Shepherd's purse

B. Coat colour in mouse

C. Feather colour in fowl

D.

Answer: D



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130. Two or more independent genes present on different chromosomes which determine nearly same phenotype are called

- A. Supplementary genes
- B. Complementary genes
- C. Duplicate genes
- D. None of these

Answer: C



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131. a human male produces sperms with the genotypes AB, Ab, aB and ab pertaining to two diallic characters in equal proportions. What is the corresponding genotype of the person

A. AaBb

B. AaBB

C. AABb

D. AABB

Answer: A



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132. In which mode of inheritance do you expect more maternal influence among the offspring

A. Y-Linked

B. X-linked

C. Autosomal

D. Cytoplasmic

Answer: D



133. In *Mirabilis* a hybrid for red (RR) and white (rr) flower produces pink (Rr) flower. A plant with pink flower is crossed with white flower the expected phenotypic ratio is

- A. Red : Pink : White (1 : 2 : 1)
- B. Pink : White (1 : 1)
- C. Red : White (1 : 1)
- D. Red : white (3 : 1)

Answer: B



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134. grain colour in wheat is determined by three pairs of polygenes. Following the cross AAB₂B₂C₂C (dark colour) × aabbcc (light colour), in F_2 generation what proportion of the progeny likely to resemble either parent

A. None

B. Less than 5 percent

C. One third

D. Half

Answer: B



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135. The most likely reason for the development of resistance against pesticides in insects damaging a crop is

A. Directed mutation

B. Acquired heritable change

C. Rndom mutations

D. Genetic recombination

Answer: B



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136. In shortorn cattle genes for red (r_1) and white (r_2) coat colour occur. Crosses between red (r_1r_2) and white (r_2r_2) produced (r_1r_2) roan. This an example of

A. Complementary genes

B. Epistasis

C. Codominance

D. Incomplete dominance

Answer: C



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137. In *Antirrhinum* two plants with pink flowers were hybridized. The F_1 plants produced red, pink and white flowers in the

proportion of 1 red, 2 pink and 1 white. What could be the genotype of the two plants used for hybridization. Red flower colour is determined by RR, and white rr genes

A. rrrr

B. RR

C. Rr

D. rr

Answer: C



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138. The gene interaction when one gene masks the effect

or

When a gene pair hides the effect of another, the phenomenon is called

- A. Complementary genes action
- B. Supplementary gene action
- C. Duplicate genes action
- D. Epistasis

Answer: D



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139. What will be the ratio in F_2 generations if red flowered variety of *Mirabilis jalapa* is crossed with white-flowered variety or

Phenotypic ratio in plant Snapdragon in F_2 is

A. 1 : 1 : 1 : 1

B. 1:2:1

C. 2: 1

D. 3: 1

Answer: B



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140. What would be the colour of flowers in F_1 progeny as a result of cross between homozygous red and homozygous white - flowered Snapdragon

A. Red

B. White

C. Red and white

D. Pink

Answer: D



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141. $9:3:3:1$ ratio is modified to $9:7$ ratio due to

A. Complementary genes

B. Epistasis gene

C. Hypostatic gene

D. Supplementary genes

Answer: A



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142. Incomplete dominance is found in

A. *Pisum sativum*

B. *Antirrhinum majus*

C. Both (a) and (b)

D. None of these

Answer: B



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143. Complete dominance is absent in

or

Incomplete dominance is shown by

A. *Pisum sativum*

B. *Mirabilis jalapa*

C. *Lathyrus odoratus*

D. *Oenothera lamarckiana*

Answer: B



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144. When an albino female plant of maize is crossed with normal green male plant, all plants in the progeny are albino because

A. Plastids are inherited through maternal plants

B. Albinism is dominant over green character

C. The crossing results in structural changes in plastids

D. Green plastids of male parents become mutated

Answer: A



Watch Video Solution

145. Kappa particles indicates

A. Nuclear inheritance

B. Cytoplasmic inheritance

C. Mutation

D. Nucleo-cytoplasmic inheritance

Answer: B



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146. *Mirabilis jalapa* is a good example of

A. Complete dominance

B. Plastid inheritance

C. Both (a) and (b)

D. None of these

Answer: B



Watch Video Solution

147. Which of the following is associated with multiple phenotypes

A. Epistasis

B. Pleiotropy

C. polygenic inheritance

D. Mutation

Answer: B



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148. Human skin colour is controlled by several gene pairs. Let us assume here that there are just three gene pair on different chromosome and that for each pair there are two alleles - an incompletely dominant one that codes for melanin deposition. If a very dark skinned person marries a very light skinned woman, what will be the chance that their offspring will have very dark skin

A. 0

B. $1/4$

C. 5/8

D.

Answer: A



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149. After crossing two plants, the progenies are found to be male sterile. The phenomenon is found to be maternally inherited and is due to some genes which reside in

A. Nucleus

B. Chloroplast

C. Mitochondria

D. Cytoplasm

Answer: D



Watch Video Solution

150. Plasmids so found in bacteria is

A. Extra nuclear DNA

B. Food particles

C. Deas protoplasmic parts

D. None of these

Answer: A



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151. F_1 hybrid is intermediate between the two parents. The phenomenon is

A. Codominance

B. Dominance

C. Blending inheritance

D. Incomplete dominance

Answer: D



Watch Video Solution

152. Extranuclear inheritance (cytoplasmic inheritance) is a consequence of presence of genes in

A. Ribosomes and chloroplast

B. Lysosomes and ribosomes

C. Mitochondria and chloroplast

D. Endoplasmic reticulum and
mitochondria

Answer: C



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153. Genes for cytoplasmic male sterility in plants are generally located in

or

in a cross between red kernelled and white kernelled varieties of wheat showing polygenic inheritance the phenotypic ratio in F_2 generation will be

A. Mitochondrial genome

B. Cytosol

C. Chloroplast genome

D. Nuclear genome

Answer: A



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154. The phenotypic ratio obtained in quantitative inheritance of a dihybrid cross is
or

In a cross between red kernelled and white kernelled varieties of wheat showing polygenic

inheritance the phenotypic inheritance the phenotypic ratio in F_2 generation will be

A. 1 : 2 : 1

B. 1 : 4 : 6 : 4 : 1

C. 1 : 6 : 15 : 20 : 15 : 6 : 1

D. 9 : 3 : 3 : 1

Answer: B



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155. A plasmid is

- A. Lives together with chromosomes
- B. Shows dependent assortment
- C. Can replicate independently
- D. Cannot replicate

Answer: C



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156. the F_2 generation offspring in a plant showing incomplete dominance, exhibit

A. Variable genotypic

B. A genotypic ratio of 1: 1

C. A phenotypic ratio of 3: 1

D. Similar phenotype and genotypic ratio
of 1: 2: 1

Answer: D



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157. The evidence that crossing over occurs at four stranded stage and not at two stranded stage of the chromosomes, comes from

A. 2:2:2:2 arrangement of ascospores in

Neurospora

B. 4:4 arrangement of ascospores in

Neurospora

C. Studies of meiosis in maize

D. Studiess on linkage maps of
chromosomes in Drosophila

Answer: A



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158. The four daughters cells derived from a single meiosis differ from each other due to

- A. Difference in chromosomes number
- B. Crossing over only

C. Independent assortment of chromosomes only

D. Crossing over as well as independent assortment of chromosomes

Answer: D



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159. Coupling and repulsion are the two faces of

A. Crossing over

B. Linkage

C. Chiasmata

D. Mutation

Answer: B



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160. The map distance between genes A and B is 3 units, between B and C 10 units and between C and 7 units. The order of the genes

in the linkage map constructed in the above data would perhaps be

A. A,B,C

B. A,C,B

C. B,C,A

D. B,A,C

Answer: D



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161. Alleles of different genes that are on the same chromosomes may occasionally be separated by a phenomenon known as
or

Linked genes are separated by

- A. pleiotropy
- B. Epistasis
- C. Continuous variation
- D. Crossing over

Answer: D



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162. Which one of the following pairs is correctly matched

A. morgan Discovered the process of linkage

B. Linus Pauling isolated DNA for the first time

C. Francis Crick Discovered the phenomenon of transformation

D. H.Khorana Discovered that a sequence of
3 nucleotides codes for a single amino
acid

Answer: A



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163. Which of the following animal was
selected by morgan for studying linkage

A. *Apis indica*

B. *Agrobacterium tumifaciens*

C. *Drosophila melanogaster*

D. *E. coli*

Answer: C



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164. In Morgan 's experiments on linkage , the percentage of white eyed miniature winged recombinants in F_2 generation is

A. 1.3

B. 37.2

C. 62.8

D. 73.2

Answer: B



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165. R and y genes of Maize lie very close to each other . When RRY_Y and rryy gneotypes are hybridised , F_2 generation will show

A. Higher number of the recombinant types

B. Segregation in the expected 9 : 3 : 3 : 1

ratio

C. Segregation in 3 : 1 ratio

D. Higher number of the parental types

Answer: D



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166. The number in linkage group in E.coil is /
are

A. 4

B. 2

C. 1

D. 5

Answer: C



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167. Crossing-over occurs in the

A. Leptotene stage

B. Pachytene stage

C. Anaphase stage

D. Diakinesis stage

Answer: B



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168. Mendel observed that some characters did not assort independently. Later researchers found it to be due to

A. Crossing over

B. Linkage

C. Dominance of one trait over the other

D. Amitosis

Answer: B



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169. Exchange of genetic material between chromatids of homologous chromosomes during meiosis is called

or

Recombination is involved in the process of

- A. Synapsis
- B. Chiasmata
- C. Transformation
- D. Crossing over

Answer: D



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170. The scientist who have given the theory linkage are

A. Morgan andd Castle

B. Beadle and Tatum

C. Watson and Crick

D. Bateson and Punnet

Answer: A



171. Which one of the following is the most suitable medium for culture of *Drosophila melanogaster*

- A. Ripe banana
- B. Cow dung
- C. Moist bread
- D. Agar agar

Answer: A



172. Depending upon the distance between any two genes, which is inversely proportional to the strength of linkage, cross overs will vary from

A. 50-100%

B. 0-50%

C. 75-100%

D. 100-150%

Answer: B



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173. Linkage decrease the frequency of

- A. Hybrid
- B. Dominant allele
- C. Recessive allele
- D. Both (a) and (b)

Answer: A



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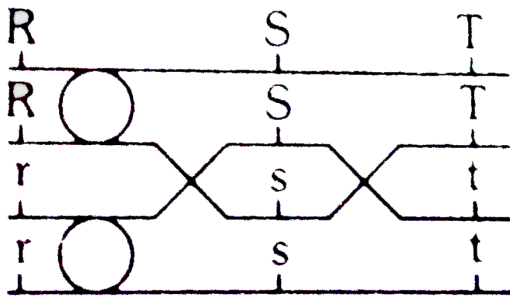
174. Crossing over in diploid organisms is responsible for

- A. Dominance of genes
- B. Linkage between genes
- C. Segregatio of alleles
- D. Recombination of linked allele (genes)

Answer: D



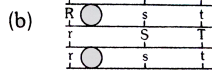
175. The figure shows a homologue (bivalent) pair of chromosomes during meiosis



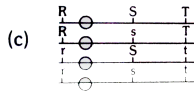
Which one of the following option correctly illustrates the final products of the second meiotic division

- A. (a)

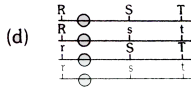
B.



C.



D.



Answer: C



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176. Linkage was first observed in

A. Field pea

B. Sweet pea

C. Pea

D. Grass pea

Answer: B



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177. What is the unit of crossing over

A. Cistron

B. Muton

C. Recon

D. None of the above

Answer: C



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178. Crossing over that results in genetic recombination in higher organisms occurs between

A. Two daughter nuclei

B. Two different nuclei

C. Sister chromatids of a bivalent

D. Non-sister chromatids of a bivalent

Answer: D



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179. When closely placed genes on the same chromosomes are inherited together the phenomenon is known as

A. Qualitative inheritance

B. Crossing over

C. Gene interaction

D. Linkage

Answer: D



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180. Genetic maps of chromosomes are based on the frequency of

A. Non-disjunction

B. Translocation

C. Dominance

D.

Answer: D



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181. Number of linkage group in *Pisum sativum*

is

or

How many pairs of contrasting characters in

pea plants were studied by mendal in his experiments

A. 2

B. 5

C. 7

D. 9

Answer: C



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182. Sexual reproduction leads to :

A. Genetic recombination

B. Polyploidy

C. Aneuploidy

D. Euploidy

Answer: A



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183. The stage during which separation of the paired homologous chromosomes begin is

A. Pachytene

B. Diplotene

C. Diakinesis

D. Zygotene

Answer: B



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184. For the preparation of genetics maps , the recombination frequencies between genes are additive over short distances but not over long distance due to

- A. Multiple cross overs
- B. Lethal mutation
- C. Epistasis
- D. Synaptonemal complex

Answer: A



View Text Solution

185. Genetics recombination occurs through

A. Mitosis and fertilization

B. Mitosis and meiosis

C. Meiosis and fertilization

D. None of the above

Answer: C



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186. When synapsis is complete all along the chromosomes, the cell is said to have entered a stage called

A. Zygotene

B. Pachytene

C. Diplotene

D. Diakinesis

Answer: B



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187. What will be the number of linkage groups in maize if it has 10 pairs of chromosomes

or

What will be the number of linkage groups in a cell having $2n=20$

- A. 5
- B. 10
- C. zero
- D. 20

Answer: B



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188. In case of incomplete linkage , the parental combinations obtained if F_1 generation are:

A. 1

B. More than 50%

C. 0.25

D. Less than 50%

Answer: B



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189. Chiasma shows the sites of

- A. Spindle formation
- B. Synapsis
- C. Crossing over
- D. None of these

Answer: C



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190. which of the following statements is not true of two genes that show 50 % recombination frequency ?

A. If the genes are present on the same chromosomes, they undergo more than one crossovers in every meiosis

B. The genes may be on different chromosomes

C. The genes are tightly linked

D. The genes show independent

Answer: C



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191. How many pairs of homologous chromosomes are present in human

A. 46

B. 44

C. 22

D. 23

Answer: D



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192. The name chromatin was coined by

A. Flemming

B. Robert brown

C. George Palada

D. Camillio Golgi

Answer: A



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193. Polytene chromosomes were first observed by

A. Batanetzky-1980

B. Heitz and Bauer-1935

C. Balbiani-1881

D. Steves and Wilson-1905

Answer: C



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194. The terminal end of a chromosomes were first observed by

- A. Centromere
- B. Chromomere
- C. Telomere
- D. Metamere

Answer: C



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195. Which of the following is the correct sequence of units genetics arranged in descending order of size

A. Gene → Cistron → Muton → Recon

B. Gene → Muton → Cistron → Recon

C. Gene → Recon → Cistron → Muton

D. Gene → Cistron → Recon → Muton

Answer: D



View Text Solution

196. Centromere is a part of chromosomes which helps in the

- A. Division of centrosomes
- B. Formation of spindle fibres
- C. Movement of chromosomes
- D. Formation of nuclear spindle

Answer: C



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197. The chromosomes number in meiocyte is

34. The organism could be

A. Ophioglossum

B. Dog

C. Onion

D. Apple

Answer: D



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198. The distance between the genes a,b,c and d in mapping units are $a-d=3,5$, $b-c=1$, $a-b=6$, $c-d=1.5$, $a-c=5$. Find out the sequence of arrangement of these genes

A. acdb

B. abcd

C. acbd

D. adcb

Answer: D



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199. The Number of autosomes in normal human sperm is :

A. 11

B. 44

C. 22

D. 45

Answer: B



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200. In a certain species of animal, genes T, U, V and W occur on the same chromosome. The following table give their crossover values (COVs)

linked gene pair	COV
T and U	25
T and V	5
V and U	30
U and W	10
V and W	20

Which of the following option shows the appropriate order of the genes on the chromosomes

- A. V,W,T,U
- B. T,V,W,U
- C. T,W,U,V
- D. V,T,W,U

Answer: D



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201. the long and short arms of chromosome are designated respectively as :

- A. p and q arms
- B. q and p arms
- C. m and p arms
- D. l and s arms

Answer: B



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202. Unfertilized egg of human contains :

- A. Two X chromosomes
- B. One X and Y chromosomes
- C. One Y chromosomes only
- D. One X chromosomes only

Answer: D



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203. The structure present over chromosome is

Or

The structure of the chromosome to which spindle fibre is attached is

A. Nucleous

B. Centromere

C. Centrochrome

D. Golgi bodies

Answer: B



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

Column I (Name of the organism)		Column II (Haploid chromosome number in gamete)	
A.	<i>Ophioglossum</i>	1.	23
B.	Rice	2.	24
C.	Potato	3.	12
D.	Man	4.	630

A. A-1, B-2, C-3, D-4

B. A-2, B-3,C-4,D-1

C. A-3, B-4,C-2,D-1

D. A-4, B-3,C-2,D-2

Answer: D



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205. Who used the word "chromosome"

A. Huxley

B. Flemming 1888

C. Kolikar 1888

D. Waldeyer 1888

Answer: D



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206. The theory of recombination of linked gene due to the crossing over of chromosome during zygotene of meiosis put forwarded by

A. T.H.Morgan

B. Punnet

C. Mendel

D. Connes

Answer: A



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207. Solenoid is sa structure of

A. Nucleosomal organization with 10nm
thickness

B. Condensed chromatin fibre with 30nm diameter

C. Highly condensed form of chromatid with 300nm thickness

D. Well organised chromatid with 700nm thickness

Answer: B



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208. Total collection of genes at any time in a unit of evolution is

Or

The sum of genes in a population is called

- A. Gene bank
- B. germplasm collection
- C. Gene library
- D. Genome

Answer: D



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209. The distance between two genes in a chromosome is measured in cross units in which present

- A. Ratio of crossing over between them
- B. Percentage of crossing over between them
- C. Number of crossing over between them
- D. None of these

Answer: B



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210. The chromosomal number in the meiocytes of housefly is :

- A. 8
- B. 12
- C. 21
- D. 23

Answer: B



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211. A chromosome, in which the centromere is situated close to its end so that one arm is very short and other very long is

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

Answer: A



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212. In polytene chromosomes dark bands are visible. These bands are formed by the apposition of

- A. Protein particles
- B. Chromomeres on chromonemata
- C. Nucleosomes
- D. None of these

Answer: B



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213. The structure in chromatin seen as 'beads-on' string' when viewed under electron microscope are called

- A. Nucleosome
- B. Nucleolus
- C. Chromosome
- D. Lysosome

Answer: A



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214. Heterochromatin remains condensed in which part of chromosome

- A. secondary constrictions- I
- B. secondary constrictions- II
- C. Telomeres
- D. Both a and b

Answer: A



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215. Chromosomal theory of inheritance was based on :

- A. Sex linkage
- B. Segregation of genes
- C. Diploidy and haploidy
- D. presence of sex chromosomes

Answer: b



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216. Number of (approximately) genes in *E. coli* are

A. 4000

B. 6000

C. 10000

D. 180000

Answer: B



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217. The largest gene in man is :

A. Dystrophin

B. Insulin gene

C. Beta globin gene of haemoglobin

D. Tumor suppressor gene

Answer: A



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218. Tizo and levan's contribution is very significant because they

- A. Gave the number of human chromosomes
- B. Pointed out mutational changes
- C. Detected sex linkage
- D. linked genes

Answer: A



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219. Depending upon size and centromere position, the 46 chromosomes have been divided into a number of groups

A. 6

B. 5

C. 7

D. 10

Answer: C



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220. The grouping of human chromosomes is based on

- A. Secondary construction alone
- B. Dot-like satellites alone
- C. Banding patterns alone
- D. All the above

Answer: C



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221. Geneticist plot the relative locations of genes on chromosomes by which of these methods

- A. Using powerful microscopes
- B. Calculating the number of genes
- C. Determining the frequency of crossing over

D. Exposing animals to radiations

Answer: C



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222. Genes are made up of

Or

Genes are chemically

A. Histones

B. Hydrocarbons

C. Polynucleotides

D. Lipoproteins

Answer: C



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223. Genes are located in

A. Ribosomes

B. Lysomes

C. chromosomes

D. Spherosomes

Answer: C



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224. The chemical nature of chromatin is :

A. Nucleic acids

B. Nucleic acids & histone proteins

C. Nucleic acids histone & non histone
proteins

D. Nucleic acids & non-histone proteins

Answer: C



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225. Chromosomal theory of inheritance was given by

A. Gregor Johann Mendel

B. Hugo de Varies

C. Landon Down

D. Thomas Hunt Morgan

Answer: D



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226. Number of histone proteins in each nucleosome core is

A. 8

B. 10

C. 12

D. 14

Answer: A



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227. Karyotype is

A. Chromosome complement which is specific for each species of living organism

B. All organism posseing same type of chromosomes

C. Division of necleus

D. None of these

Answer: A



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228. What would be the number of chromosomes of the aleurone cells of a plant with 42 chromosomes in its root tip cells?

A. 21

B. 42

C. 63

D. 84

Answer: C



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229. Genes which are confined to differential region of the Y-chromosome only are called :

A. Mutant

B. Autosomal

C. Holndric

D. Completely sex-linked

Answer: C



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230. Crossing overt takes place at a stage between

- A. Letotone and dipotene
- B. Pachytene and diplotene
- C. Zygotene and pachytene
- D. Zygotene and diplotene

Answer: B



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231. What is the chromosome number of plasmodium

A. 18

B. 14

C. 10

D. 9

Answer: B



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232. The polytene chromosomes were discovered for the first time in

A. Chrinomus

B. Fruitfly

C. Drosophila

D. House fly

Answer: A



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233. A child receives

A. 25% genes form his father

B. 50% genes form his father

C. 75% genes form his father

D. 100% genes form his father

Answer: B



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234. Telomere repetitive DNA sequences control the function of eukaryote chromosomes because they

A. Act as replicons

B. Are RNA transcription initiator

C. Help chromosome pairing

D. Prevent chromosome loss

Answer: D



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235. Genes are in the form of :

A. Sequence of nucleotide

B. Base pair

C. Proportion of base pair

D. None of these

Answer: A



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236. The genome of *Caenorhabditis elegans* consists of

A. 3 billion base pair and 30,000 genes

B. 180 billion base pair and 13,000 genes

C. 4.7 billion base pair and 4,000 genes

D. 97 billion base pair and 18,000 genes

Answer: D



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237. Match the number of genes given in Column-I with names of organisms in Column-

II and choose the correct alternatives:

Column - I		Column - II	
A.	450 to 700 genes	1.	<i>Escherichia coli</i>
B.	4000 genes	2.	<i>Drosophila melanogaster</i>
C.	13,000 genes	3.	<i>Mycoplasma</i>
D.	32,000 to 50,000 genes	4.	<i>Homo sapiens</i>
E.	35,000 to 45,000 genes	5.	<i>Oryza sativa</i>

A. A-2,B-1,C-5,D-3,E-4

B. A-3,B-1,C-2,D-5,E-4

C. A-3,B-2,C-1,D-5,E-4

D. A-2,B-3,C-1,D-5,E-4

Answer: B



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238. Arrangement of chromosomes in the order of decreasing length is termed

- A. Pedigre
- B. Eugenetics
- C. Idiogramm
- D. Dysengenics

Answer: C



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239. The condensation of the chromosomes are maximal with visible centromeres at which phase of cell cycle

A. G_1 phase

B. S phase

C. G_2 phase

D. M phase

Answer: D



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240. A normal metaphase, chromosome with a middle centromere is

Or

Chromosomes whose arms are equal are called

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

Answer: A



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241. The males of grasshoppers and bugs possess two sets of autosomes and :

- A. X and Y chromosomes
- B. Only Y chromosomes
- C. Only X chromosomes
- D. Neither X and Y chromosomes

Answer: B



242. Relative morphologies of chromosomes of an individual indicate his/her

- A. Genotype
- B. Phenotype
- C. Pedigree chart
- D. Karyotype

Answer: D



243. For making important contributions in respect of the nature of gene, the Noble Prize was rewarded to

A. T.H.Morgan

B. De Vries

C. H.J. Muller

D. Darwin

Answer: A



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244. In humans, most number of genes are located on chromosome

A. 1

B. 6

C. X

D. 21

Answer: A



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245. The number of autosomes in human female is

A. 21

B. 22

C. 23

D. 44

Answer: D



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246. The point at which the polytene chromosomes appear to be attached together is known as

- A. Centriole
- B. Chromocentre
- C. Centromere
- D. Chromomere

Answer: B



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247. Balbiani discovered special type of chromomus larva which are recognized by the presence of

- A. Bands
- B. Loops
- C. Both bands and loops
- D. All the above

Answer: C



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248. Who used the frequency of recombination between gene pairs on the same chromosome as a measure of the distance between genes and mapped their position on the chromosome ?

A. Gregor Mendel

B. Correns

C. Tschemark

D. Alfred Sturtevant

Answer: D



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249. Polytene or giant chromosomes are found
is

- A. Salivary glands of man
- B. Salivary glands of woman
- C. Salivary glands of all animals
- D. Salivary glands of *Drosophila*

Answer: D



250. Lampbrush chromosomes are visible

- A. In diplotene of meiosis
- B. In prophase of meiosis
- C. In interphase
- D. In metaphase of meiosis

Answer: A



251. In sex linkage ,the speciality is :

A. Atavism

B. Criss cross inheritance

C. Reversin

D. Gene flow

Answer: B



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252. Doubling of the chromosomes is termed as

A. Duplication

B. Tanscription

C. Translation

D. None of these

Answer: A



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253. Lampbrush chromosomes are found inside

- A. Salivary gland of *Drosophila*
- B. Salivary glands of silk moth
- C. Oocytes of frog
- D. Nucleus of man

Answer: C



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254. Genetically active area of chromosome is called

- A. Euchromatin
- B. Heterochromatin
- C. Heptan
- D. Cistron

Answer: A



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255. *Drosophila melanogaster* possesses eight chromosomes in somatic cells. How many linkage groups will be there?

A. 4

B. 8

C. 2

D. 5

Answer: A



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256. Two sister chromatids are attached with

- A. Spindle fibre
- B. Centromere
- C. Chromocentre
- D. Chromatid

Answer: B



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257. Balbiani rings are present in

A. Polysomes

B. Autosomes

C. Polytene chromosomes

D. None of these

Answer: C



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258. Chromosomes can be stained with

A. Iodine

B. Aniline blue

C. Safranin

D. Aceto carmine

Answer: D



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259. Plant A is having Chromosomes no $2n=12$ and B having $2n=16$ Both are crossed to form allotetraploid C. What is the Chromosomes number of C

A. 14

B. 28

C. 12

D. 16

Answer: A



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260. Crossing over takes place between :

A. Two chromosomes

B. Two non-homologous chromosomes

C. Two homologous chromosomes

D. none

Answer: C



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261. Whereas the number of chromosomes is reduced to half in first reduction division of meiosis, then what is the need for second mitotic division

A. For the segregation of replicated chromosomes

B. For equal distribution of haploid chromosomes

C. For the formation of four gametes

D. For equal distribution of genes on chromosomes

Answer: A



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262. In humans chromosomal condition of male is

A. $44AA+XO$

B. $44AA+XX$

C. $44AA+XY$

D. $44AA+XXY$

Answer: C



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263. The carriers of hereditary material are

A. Chromosomes

B. Gene

C. Gametes

D. Gametocytes

Answer: A



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264. The twenty third pair of chromosomes in man is known as

- A. Chromatid
- B. Heterosome
- C. Autosome
- D. Gene

Answer: B



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265. In recent past human chromosomes have been studied by a technique using specific, fluorescent dyes, known as

- A. Dyeing technique
- B. Banding technique
- C. Ultra dyeing technique
- D. Karyotyping technique

Answer: B



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266. The chromosomes asre thread like structures in nucleous was first desribed by

A. Mendel

B. Strasburger

C. Darwin

D. Levitzky

Answer: B



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267. The function of chromosomes of carrying the genetic information from one cell generation to another is performed by

A. RNA

B. DNA

C. Histones

D. Calcium

Answer: B



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268. The chromosomes which determine the somatic characters are called

A. Sex chromosomes

B. Heterosomes

C. Autosomes

D. None of these

Answer: C



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269. The linkage map of X-chromosome of fruit fly has 66 units with yellow body gene Y at one end and bobbed hair B gene at the other end. The recombination frequency between these two genes Y and B should be

A. 1

B. 0.66

C. 0.5

D. 0.055

Answer: B





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270. Chromosomes number is

- A. Fixed for a species
- B. Fixed for an ecosystem
- C. Fixed for a community
- D. Fixed

Answer: A



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271. Science which links heredity with environments is

A. Genetics

B. Gene ecology

C. Ecology

D. Ecophysiology

Answer: B



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272. In man sexlinked characters are mainly transmitted through

A. Y-chromosome

B. Autosome

C. X-chromosome

D. X-chromosome, Y-chromosome and
Autosomes

Answer: C



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273. A male human, Y-chromosome and Autosomes and is also hemizygous for autosomal gene A and B and is also hemizygous for hemphilic gene h. What proportion of his sperms will be abh

A. $\frac{1}{16}$

B. $\frac{1}{4}$

C. $\frac{1}{8}$

D. $\frac{1}{32}$

Answer: C



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274. The recessive genes located on X-Chromosomes in humans are always

- A. Expressed in males
- B. Expressed in females
- C. Lethal
- D. Sub-lethal

Answer: A



275. The total number of nitrogenous bases in human genome is estimated to be about

- A. 3.5million
- B. 35 thousand
- C. 35million
- D. 3.1billion

Answer: D



276. In order to calculate map distance of genes on a chromosome, one must know the

A. Number of mutual genes

B. Cross over percentage

C. Recombination frequency of each gene locus

D. Non-Cross over percentage

Answer: B



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277. At particular locus, frequency of 'A' allele is 0.6 and that of 'a' is 0.4. What would be the frequency of heterozygotes in a random mating population of equilibrium

- A. 0.16
- B. 0.48
- C. 0.36
- D. 0.24

Answer: B



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278. Polytene Chromosomes are formed by

A. Endoreduplication of chromosomes

B. Somatic pairing of homologous chromosomes

C. Somatic pairing of non-homologous chromosomes

D. Germinal pairing of non-homologous chromosomes

Answer: A



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279. Telemeras is an enzyme which is a

A. Repetitive DNA

B. RNA

C. Simple protein

D. Ribonucleoprotein

Answer: D



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280. Percentage of recombination between A and B is 9% and C is 17%. B and C is 26%, then the arrangement of genes is

A. ABC

B. ACB

C. BCA

D. BAC

Answer: D



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281. Chromosomes complement with $2n-1$ is called as

A. Monosomy

B. Nullisomy

C. Trisomy

D. Tetrasomy

Answer: A



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282. A gene is said to be dominant, if

A. It is never expressed in any condition

B. Is is expressed only in heterozygous
condition

C. It expressed its effect only in homozygous stage

D. It expresses its effect only in homozygous and heterozygous conditions

Answer: D



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283. Chromosomes were seen for the first time by

A. Waldeyer

B. Flemming

C. Hofmeister

D. Strasburger

Answer: C



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284. Genes located at the same locus of chromosomes are called

A. Polygenes

B. Oncogenes

C. Multiple alleles

D. Strasburger

Answer: C



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285. Jumping genes are found in

A. Polygenes

B. Oncogenes

C. Multiple alleles

D. None of these

Answer: D



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286. Some genes in bacteria and virus may code for more than one polypeptide, they are called in

A. Overlapping genes

B. Jumping gene

C. Split gene

D. None of these

Answer: A



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287. The person who discovered 'Y'

Chromosomes was

A. Mc Carthy

B. Mc Clung

C. Gregor Mendel

D. Netti Stevens

Answer: D



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288. "Nu body" was shown by

A. Darlington

B. Johanssen

C. Woodcock

D. Temin and Baltimore

Answer: C



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289. "Cytochimeras" means

A. Cell having haploid

B. Cells having two nuclei

C. Cells having different chromosomes

other than vegetative cells

D. None of these

Answer: C



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290. Genes carried on chromosomes was first proved by

A. Mendel

B. Watson

C. Crick

D. Bridges

Answer: D



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291. In *Pisum sativum* there are 14 Chromosomes. How many pairs with different chromosomal composition can be prepared

A. 14

B. 7

C. 2^{14}

D. 2^7

Answer: D



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292. Which of the following is incorrectly paired

A. Sry gene X chromosome

B. $2n-2$ -nullisomic

C. Nucleiod prokaryote

D. Polytecnic

Answer: A



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293. Gene controls

A. Heredity but not protein synthesis

B. Protein synthesis but not heredity

C. Both heredity and protein synthesis

D. Biochemical action of some enzymes

Answer: C



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294. Smallest structure having the power of replicating itself is

Or

The factor responsible for expression of

character transmitted from parents to
offsprings

A. Chloroplast

B. Gene

C. Mitochondria

D. Ribosome

Answer: B



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295. The core of nucleosome is made up of

A. H_1H_2A , H_2B , H_3

B. H_1H_2A , H_2B , H_3 , H_4

C. H_2H_2A , H_2B , H_4

D. H_2H_2 , H_2B , H_4

Answer: D



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296. Nucleosome consists of

A. Nucleolus

B. Genes

C. Microfilaments

D. Histones

Answer: D



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297. Structural elements of chromatin is

A. Histone

B. Acid protein and DNA

C. Nuclear matrix

D. Nucleosome

Answer: D



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298. The salivary gland Chromosomes in the dipteran larvae, are useful in gene mapping because

A. These are fused

B. These are much longer in size

C. These are easy to stain

D. They have endoreduplicated chromosomes

Answer: D





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299. Nucleosome are

- A. Units of DNA
- B. Units of RNA
- C. Units of proteins
- D. Units of chromosomes

Answer: D



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300. Carrier of heredity is

A. Gene

B. DNA

C. Chromosome

D. All the above

Answer: D



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301. Plant A is having Chromosomes no $2n=12$ and B having $2n=16$ Both are crossed to form allotetraploid C. What is the Chromosomes number of C

A. 32

B. 14

C. 28

D. 7

Answer: C



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302. Haloandric genes are

A. Carried By 'X' chromosomes

B. Carried by different parts of 'Y' chromosomes

C. Carried by 'X' and 'Y' chromosomes

D. Carried by autosomes

Answer: B



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303. Which organism was used by Beasdle and Tatum to proposed one gene one enzyme hypothesis

A. E.coli

B. Nostoc

C. Drosophila

D. Neurospora

Answer: D



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304. A gene is made up of

A. DNA

B. RNA

C. Either DNA and RNA

D. Amino acids

Answer: C



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305. Which one of the following conditions of the zygotic cell would lead to the birth of a normal human female child

- A. Only one X chromosome
- B. One X and one Y chromosome
- C. Two chromosomes
- D. Only one Y chromosome

Answer: C



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306. Separation of the two chromatids of a chromosome takes place in mitosis during

- A. Prophase
- B. Anaphase
- C. Metaphase
- D. Telophase

Answer: B



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307. The modern concept of gene is

- A. A segment of DNA capable of crossing over
- B. A functional unit of DNA
- C. A segment of DNA
- D. A segment of chromosome

Answer: B



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308. "One gene one enzyme" theory was proposed by

A. G.W. Beadle and E.L. Tatum

B. O.T.Avery and M.McCarthy

C. J.H. Tijo and A. Tijo

D. C.E. Ford and J.H. Tijo

Answer: A



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309. One functional unit of gene which specifies synthesis of one polypeptide is known as

Or

The equivalent of a structural gene

A. Recon

B. Clone

C. Codon

D. Cistron

Answer: D





310. The theory of jumping genes was propounded by or Noble prize for the concept of jumping gene was given to

A. Medal

B. Mrogan

C. Barbara Mc Clintock

D. Sanger

Answer: C



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311. The terms cistron, recon and muton were proposed by

A. W. Ingram

B. Basteson

C. J. Lederberg

D. S. Benzer

Answer: D



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312. A normal spontaneous rate for a single gene is one mutation in every.. replication

A. 10^3 to 10^5

B. 10^5 to 10^9

C. 10^6 to 10^9

D. 10^7 to 10^{10}

Answer: C



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313. Genes are located in

A. Morphological units

B. Hereditary units

C. Basic units

D. All of these

Answer: B



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314. The eukaryotic Chromosomes are made up of

A. DNA

B. RNA

C. DNA and proteins

D. DNA and lipids

Answer: C



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315. Chromosomes Y is

- A. Acecentric
- B. Metacentric
- C. Telocentric
- D. Submetric

Answer: A



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316. Nucleosome are bounded by

A. RNA

B. Histone H_4

C. Histone H_3

D. DNA

Answer: D



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317. Who postulated the "Chromosomes"
Theory of Inheritance

Or

The behaviour of the chromosomes was parallel to the behavior of genes during meiosis was noted by

A. De Vries

B. Mendal

C. Sutton and Boveri

D. Morgon

Answer: C



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318. In split genes, the coding sequences are called

A. Cistrons

B. Operons

C. Exons

D. Introns

Answer: C



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319. Which of the following true

- A. One gene one protein
- B. One gene one polypeptide
- C. One gene many polypeptide
- D. All of the above

Answer: B



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320. The bacterial genome refers to the total number of genes located upon a or The term 'genome' refers to the total number of genes combined in a

- A. Haploid set of chromosomes
- B. Diploid set of chromosomes
- C. Tetraploid set of chromosomes
- D. Hexaploid set of chromosomes

Answer: A



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321. Different types of chromosomes can be recognised by the position of the centromere following separating the two arms

A. Centromere

B. Genes

C. Spindle

D. Nucleus

Answer: A





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322. Nucleosome core is intimately associated with

A. 160 bp of DNA

B. 210 bp of DNA

C. 250bp of DNA

D. 100bp of DNA

Answer: A



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323. Select the incorrect match

A. Lampbrush chromosomes : Diplotene

bivalents

B. Allosomes : Sex chromosomes

C. Submetacentric chromosomes : L-shaped

chromosomes

D. Polytene chromosomes : Oocytes of

amphibians

Answer: D



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324. Usually the recessive character is expressed only when present in a double recessive condition. However, a single recessive gene can express itself in human beings when the gene is present on

A. Any autosome

B. X chromosome of female

C. X chromosome of male

D. Either on autosome or X chromosomes

Answer: C



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325. In humans, height and skin colour shows a lot of variation. They are example of

A. Multiple alleles

B. Pleiotropic inheritance

C. Polygenic/Quantitative inheritance

D. Pseudoalleles

Answer: C



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326. In human beings, the colour of skin is controlled by

A. Multiple alleles

B. Lethal genes

C. Polygenic effect

D. None of these

Answer: A



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327. Which of the following is genetically dominant in man

A. Colour blindness

B. Rh positive

C. Haemophilia

D. Albinism

Answer: B



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328. Which of the following genotypes does not produce any sugar polymer on the surface of the RBC

A. $I^A I^A$

B. $I^B i$

C. $I^A I^B$

D. ii

Answer: D



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329. ABO blood grouping is controlled by gene I which has three alleles and show co-dominance. There are six genotypes: How many phenotypes in all are responsible

A. Six

B. Three

C. Four

D. Five

Answer: C



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330. Inheritance of ABO blood grouping is an example of

A. DOMINANCE

B. Co-dominance

C. Incomplete dominance

D. Both a and b

Answer: D



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331. The most polpularly known blood grouping is the ABO grouping. It is named

ABO and not ABC, because, because "O" in it refers to having

- A. Other antigens besides A and B on RBC_s
- B. Overdominance of this type of the genes for A and B types
- C. one antibody only either anti-A or anti-B on the RBC_s
- D. No antigens A and B on RBC_s

Answer: D



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332. Inheritance of blood group is a condition of

A. A,B,C

B. B,D,E

C. B,C,D

D. A,C, E

Answer: D



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333. A woman with blood 'O' has a child with blood group 'O'. She claims that a man with blood group 'A' as the father of her child. What would be the genotype of the father, if her claim is right

A. $I^{\circ} I^{\circ}$

B. $I^A I^B$

C. $I^A I^{\circ}$

D. $I^B I^{\circ}$

Answer: C



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334. The condition of erythroblastosis foetalis occurs only when

- A. The husband is Rh^+ and wife is Rh^-
- B. The husband is Rh^- and wife is Rh^+
- C. The mother is Rh^+ and foetus is Rh^-
- D. The mother is Rh^- and foetus is Rh^+

Answer: D



335. The offspring produced from a marriage have only O or A blood groups. Of the genotypes given below, the possible genotypes of the parents would be

A. $I^A I^A$ and $I^A I^O$

B. $I^O I^O$ and $I^O I^O$

C. $I^A I^A$ and $I^O I^O$

D. $I^A I^O$ and $I^O I^O$

Answer: D



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336. Blood stains are found at the site of a murder. If DNA profiling technique is to be used for identifying the criminal. Which of the following is ideal for use

- A. Serum
- B. Erythrocytes
- C. Leucocytes

D. Platelets

Answer: C



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337. A person with blood group 'A' can be given blood of which group

A. A and B

B. B and O

C. A and O

D. A, B, AB and O

Answer: C



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338. Antisera used to detect Rh blood group

A. Anti A

B. Anti B

C. Anti C

D. Anti D

Answer: D



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339. Human blood groups are example of a

- A. Gradulism
- B. Cline
- C. Gradient of diplodiy
- D. Polymorphism

Answer: D



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340. Who was the scientist to introduce ABO blood groups

- A. Wiener
- B. Levine
- C. Fisher
- D. Landsteiner

Answer: D



341. One of the following is not the types of blood groups or blood factors

A. Lewis and Duffy

B. Buffs and Kips

C. ABO and Rh

D. Rh and MN

Answer: B



342. Mating among close relations is referred

- A. Permanent marriage
- B. Line breeding
- C. In breeding
- D. Cross breeding

Answer: C



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343. Genes exhibiting multiple effects phenotype are known as

- A. Complementary genes
- B. Pleiotropic genes
- C. Cistrons
- D. Pseudogenes

Answer: B



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344. For a child having blood group B, if father has blood group A, what may be the blood group of the mother

A. O or A

B. O

C. B or AB

D. A

Answer: C



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345. If a child has O type of blood group and the father B type, the genotype of the father will be

A. $I^O I^O$

B. $I^A I^B$

C. $I^O I^B$

D. $I^B I^B$

Answer: C



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346. Person with blood group AB is considered as universal recipient because he has

- A. No antigen on RBC and no antibody in the plasma
- B. Both A and B antigens in the plasma but no antibodies
- C. Both A and B antigens on RBC but no antibodies in the plasma
- D. Both A and B antibodies in the plasma

Answer: C



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347. Rh factor may be responsible for

- A. Turner's syndrome
- B. AIDS
- C. Sickle-cell anaemia
- D. Erythroblastosis foetalis

Answer: D



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348. Parents of blood O and AB cannot have a child of group AB because

A. Gene O is dominant over gene A

B. Gene O is dominant over gene B

C. Gene A or B is absent in on of the
parents

D. Gene A and B is absent in on of the
parents

Answer: D



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349. Identify the wrong statemen

A. Alleles b and c also produce sugar

B. Alleles I^A and I^B to produce sugar

C. When I^A and b or l are present only I^B

is expressed

D. Both I^A and I^B are present together and they express because of co-dominance

Answer: A



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350. Which of the following is the number of alleles for a blood group in an individual

A. 1

B. 2

C. 3

D. 4

Answer: C



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351. Rh factor is named after

A. Man

B. Rat

C. Monkey

D. Chimpanzee

Answer: C



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352. A person with antigens A and B and no antibodies belongs to blood group or In which blood group antibodies are absent

A. A

B. B

C. AB

D. O

Answer: C



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353. If a man Rh^+ marries a lady Rh^- , then

A. First child will die

B. First child will survive

C. No child will be born

D. None of these

Answer: B



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354. Universal donors have no antigens in RBC and have both a and b antibodies. They belong to blood group

or

Which blood group patients of any blood group

A. A

B. B

C. AB

D. O

Answer: D



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355. Four children belonging to the same parents have the following blood group A, B, AB and O. Hence, the genotype of the two parents are

A. Both parents are homozygous for 'A' group

B. One parent is homozygous for 'A' and another parnts is homozygous for 'B'

C. One parent is heterozygous for 'A' and another parnts is hetrozygous for 'B'

D. Both parents are homozygous for 'B' group

Answer: C



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356. When red blood corpuscles containing both A and B antigens are mixed with your blood serum, they agglutinate. Hence your blood group is.....type.

A. AB

B. O

C. A

D. B

Answer: B



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357. Person of blood group A contain

A. Antigen A and antibodies b

B. Antigen A and antibodies a

C. Antigen A and B are no antibodies

D. No antigens and both a and b
antibodies

Answer: A



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358. Blood group agglutinin is

A. Glycoprotein

B. Phosphorprotein

C. Haeoprotein

D. Phospholipd

Answer: A



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359. The animal which has oval RBCs

A. Humasns

B. Camel

C. Dog

D. Fish

Answer: B



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360. Blood group and named because of the agglutination A and B present in

A. Plasma

B. RBC

C. WBC

D. Platelets

Answer: B



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361. A person with unknown blood group under ABO system, has suffered much loss in an accident and needs immediate blood trasfusion. His one friend who has a valid certifacte of his own blood type. What would

have been the type of blood group of the donor friend

- A. Type A
- B. Type B
- C. Type AB
- D. Type O

Answer: D



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362. The second pregnancy of a woman terminates due to anaemia of the foetus. She has never had a blood transfusion. On the basis of this, which of the following is correct

A. Child from the first pregnancy is

Rh⁺ve

B. The husband of the woman is *Rh⁺ve*

C. The woman is Rh-ve

D. All the above

Answer: D



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363. With regard to the ABO blood typing system, if a man who has type O blood were to have children, what blood types could the children have

A. A or O

B. B or O

C. AB or O

D. A,B,AB or O

Answer: B



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364. If two persons with 'AB' blood group marry and have sufficiently large number of children, these children could be classified as 'A' blood group: 'AB' blood group 'B' blood group in 1:2:1 ratio. Modern technique of protein electrophoresis reveals presence o

both 'A' and 'B' type proteins in 'AB' blood group individuals. This is an example of

- A. Complete dominance
- B. Co-dominance
- C. Incomplete dominance
- D. Partical dominance

Answer: B



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365. The probability of a having a child with blood group O to parents with blood groups A and B is

A. 4 out of 4

B. 3 out of 4

C. 2 out of 4

D. 1 out of 4

Answer: D



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366. Example of qualitative inheritance is

- A. Colour of skin
- B. Colourblindness
- C. Klinefelter's syndrome
- D. Alkaptonuria

Answer: A



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367. The father has blood group AB and mother 'O'. The child is supposed to have which of the following bloodgroups.

A. A' or 'B'

B. A' only

C. B' or 'O'

D. B only

Answer: A



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368. A child of a mother with blood group AB may have any one of the following blood groups except.

A. A

B. B

C. AB

D. O

Answer: D



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369. Donors and receipts in a blood transfusion process can be

- A. Only father and son
- B. Only brother and sister
- C. Only maternal uncle and niece
- D. All of these

Answer: D



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370. Which of the following substances, if introduced into the blood system, would cause coagulation of blood at the site of its introduction

A. Fibrinogen

B. Prothrombin

C. Heparin

D. Thromboplastin

Answer: D



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371. Detection of blood group is done by agglutination test using antiserum. According to this

A. If the blood shows coagulation with antiserum B, the blood group is B

B. If the blood shows coagulation with both antiserum A and B, the blood group is O

C. If the blood shows coagulation with

both antiserum A, the blood group is AB

D. None of these

Answer: A



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372. Mother homozygous B, and father is A.

what will be the possible blood group in their

progeny

A. AB & B possible

B. AB & A possible

C. A and B possible

D. O possible

Answer: A



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373. Rh-ve person donated blood to Rh+ve person for the second time. Then

A. Rh-ve peroson wil die

B. Nothing happens to RH+ve person

C. Rh+ve blood starts reacting

D. Rh+ve person will die

Answer: B



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374. Rh factor is present in

A. All vertebrates

B. All mammals

C. All reptiles

D. Man and rhesus monkey only

Answer: D



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375. If the foetus is Rh^+ and mother is Rh^-

then

A. Foetus will transmit antigen to mother
blood

B. Foetus will transmit antibody to mother
blood

C. Foetus is attacked by antibodies to
mother blood

D. Foetus is attacked by antigen to mother
blood

Answer: A



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376. A woman is married for the second time. Her first husband was ABO blood type A, and her child by that marriage was type O. Her new husband is type B and their child is type AB. What is the woman's ABO genotype and blood type

A. $I^A I^O$ Blood type A

B. $I^A I^B$ Blood type AB

C. $I^B I^O$ Blood type of B

D. $I^O I^O$ Blood type O

Answer: A



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377. Who discovered Rh factor

A. Huxley

B. Landsteiner

C. Landsteiner and Weiner

D. Weiner

Answer: C



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378. If one parent has blood group A and the other parent has blood group B, the offspring have which blood group

A. AB

B. O

C. BO

D. A, B, AB or O

Answer: D



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379. The problem due to Rh^- factor arises when the blood two (Rh^+ and Rh^-) mix up

- A. In a test tube
- B. Through transfusion
- C. During pregnancy
- D. Both a and c

Answer: D



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380. Which of the following are most abundant types of antibodies

A. IgA

B. IgE

C. IgG

D. IgM

Answer: C



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381. When dominant and recessive alleles express themselves together, it is called

- A. Dominance
- B. Co-dominance
- C. Amphidominance
- D. Pseudodominance

Answer: B



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382. In erythroblastosis foetalis, which factor of the mother pass through placenta into the foetus

- A. Rh antigens
- B. Rh antibodies
- C. ABO antibodies
- D. Aggulatinins

Answer: B



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383. Which of the following is hereditary character of blood

A. Blood group

B. Haem

C. Nucleus

D. None of the above

Answer: A



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384. You are required to draw blood from a patient and to keep in it a test tube for analysis of blood corpuscles and plasma. You are also provided with the following four types of test tubes. Which of them will you not use for the purpose.

A. Test tube containing heparin

B. Test tube containing sodium oxalate

C. Test tube containin calcium bicarbonate

D. Chilled test tube

Answer: C



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385. A man with blood group B marries a women with blood group A and their first child ois having blood group B. What is the genotype of child

A. $I^a I^b$

B. $I^o I^o$

C. $I^b I^o$

D. $I^b I^b$

Answer: C



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386. Marriage between persons having AB blood groups would produce

A. Offsprings with AB blood group only

B. Offsprings with A,B and blood group

C. Offsprings with A and B blood group
only

D. Offsprings with A,B,AB and O blood
group

Answer: B



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387. Among of the following characters, which one was not considered by Mendal in his experiments on pea

A. Stem- Tall of Dwarf

B. Trichomes-Glandular or non-glandular

C. Seed- Green or Yellow

D. Pod-Inflated or Constricted

Answer: C



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388. A person affected by disease having chromosome complement XXX is called/having

- A. Klinefelter's
- B. Down's syndrome
- C. Super female
- D. Turner's syndrome

Answer: C



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389. With respect to phenylketonuria identify which statement is not correct

- A. It is a case of aneuploidy
- B. It is an example of pleiotropy
- C. Caused due to autosomal recessive trait
- D. It is error in metabolism

Answer: A



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390. Mating between two individuals differing in genotype to produce genetic variation is called

A. Domestication

B. Introduction

C. Hybridisation

D. Mutation

Answer: C



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391. Sickle cell anemia is most resistant to which disease

A. Malaria

B. Filaria

C. Dengue

D. Chicken pox

Answer: A



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392. If an albino man marries with a normal woman and 50 offsprings are albino and 50 are normal, the woman is

- A. Heterozygous normal
- B. Homozygous normal
- C. Heterozygous carrier
- D. None of these

Answer: C



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393. Occurrence of cell containing multiples of $2n$ genomes in diploid organisms is known as

- A. Aneuloidy
- B. Allopidy
- C. Amephiplodiy
- D. Endropolyploidy

Answer: B



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394. The genetic defect-adenosine deaminase (ADA) deficiency may be cured permanently by

A. Periodic infusion of genetically engineered lymphocytes having functional ADA Cdna

B. Administering adenosine deaminase activators

C. Introducing bone marrow cells producing ADA into cell at early embryonic stages

D. Enzyme replacement therapy

Answer: C



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395. The hereditary disease in which the urine of a person turns black on exposure to air due to the presence of homogentisic acid is known as

A. Ketonuria

B. Phenylketonuria

C. Haematuria

D. Alkaptonuria

Answer: D



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

A. Chromosomal aberration

B. Genetic drift

C. Recombination

D. Transduction

Answer: C



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397. To be evolutionary successful, a mutation must be

A. Germplasm DNA

B. Somatoplasm DNA

C. Cutoplasm

D. RNA

Answer: A



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398. Which of the chromosomal formulation is responsible for the expression of meta-male character in *Drosophila*

A. $2A+3X$

B. $3A+3X$

C. $4A+3X$

D. $3A+XY$

Answer: D



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399. Sickle cell anemia is

A. An autosomal linked dominant trait

B. Caused by substitution of valine by glutamic acid in the beta globin chain of haemoglobin

C. Caused by a change in a single base pair of DNA

D. Characterized by elongated sickle like RBCs with a nucleus

Answer: C



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400. Alzheimer disease in humans is associated with the deficiency of

A. Dopamine

B. Glutamic acid

C. Acetylcholine

D. Gamma aminobutyric acid (GABA)

Answer: D



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401. Industrial melanism as observed in prepared moth proves that

A. The true black melanic forms arise by a recurring random mutation

B. The melanic form of the moth has no selective advantage over lighter form in industrial area

C. The lighter form moth has no selective advantage either in pollution-generated feature

D. Melanism is a pollution generated feature

Answer: A



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402. Mongoloid condition is related to or In monglism a patient

A. Monosomy

B. Trisomy

C. Nullisomy

D. None of the above

Answer: B



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403. Which of the following is a genetic disease

A. Phenylketonuria

B. Blindness

C. Cataract

D. Leprosy

Answer: A



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404. Which of the following conditions in humans is correctly matched with its chromosomal abnormality/linkage

Or

An abnormal human male phenotype involving an extra X- chromosomes in a case of

A. Erthroblastosis foetalis-X-linked

B. Down syndrome-44 autosomes +XO

C. Klinefelter's syndrome-44
autosomes+XXY

D. None of these

Answer: C



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405. Mutation is

- A. Sudden change in morphology
- B. Change in characters
- C. Change in heritable characters
- D. None of these

Answer: C



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406. A person who is trisomic for twenty first pair of chromosomes is

or

Number of sex chromosomes is normal in

A. Klinefelter's syndrome

B. Down's syndrome

C. Turner's syndrome

D. None of these

Answer: B



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407. The monosomic condition in human beings depicted as XO is referred to as

- A. Criminal syndrome
- B. Down's syndrome
- C. Klinefelter's syndrome
- D. Turner's syndrome

Answer: D



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408. Point (Gene mutation) mutation involves

A. Insertion

B. Change in single base pair

C. Duplication

D. Deletion

Answer: B



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409. The number of chromosomes in Turner's syndrome is

A. 45

B. 43

C. 44

D. 42

Answer: A



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410. Which of the following disorders is not hereditary

A. Haemophilia

B. Cataract

C. Sickle-cell anaemia

D. Colourblindness

Answer: B



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411. Disorders of amino acid metabolism results in

A. Alkaptonuria

B. Phenylketonuria

C. Albinism

D. All of the above

Answer: D



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412. The incorrect statement with regard to haemophilia is

- A. A single protein involved in the clotting of blood is affected
- B. It is a sex-linked disease
- C. It is a recessive disease
- D. It is dominant disease

Answer: D



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413. The point mutations A to G, C to T, C to G and T to A in DNA are

A. Transition, transition, transversion and transversion respectively

B. Transition, transversion, transition and transversion respectively

C. Transversion, transversion, transition and transition respectively

D. All four are transition

Answer: A



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414. Genomic mutation is

- A. Change in number genes
- B. Change in number of chromosomes
- C. Change in shape of chromosomes
- D. All of these

Answer: B



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415. Haploids are more suitable for mutation studies than the diploids. This is because

A. Haploids are more abundant in nature than diploids

B. All mutations, whether dominant or recessive are expressed in haploids

C. Haploids are reproductively more stable than diploids

D. Mutagens penetrate in haploids more effectively than in diploids

Answer: B



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416. The number of chromosomes in Down's syndrome is

A. 23rd pair with one less =45

B. 21st pair with one more=47

C. 17th pair with one more =47

D. One extra sex chromosome =47

Answer: B



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417. When a mutation is limited to be the substitution of one nucleotide for another, it is called

A. Translocation

B. Point mutation

C. Base inversion

D. Sugar phosphate deletion

Answer: B



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418. A man having Klinefelter's syndrome is

A. Intersex with secondary sexual

characters on the side of female

B. Male with secondary sexual characters of female

C. Female with secondary sexual characters of male

D. Normal fertile male

Answer: B



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419. An abnormal human baby with XXX sex chromosomes was born due to

A. Formation of abnormal ova in the mother

B. Fusion of two ova and one sperm

C. Fusion of two sperms and one ovum

D. Formation of abnormal sperms in the father

Answer: A



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420. Edward's syndrome, Patau's syndrome and Down's syndrome are due to

A. Mutation due to malnutrition

B. Change in sex chromosomes

C. Change in autosomes

D. Change in both sex chromosomes and autosomes

Answer: C



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421. Which of these is not a Mendelian disorder

- A. Cystic fibrosis
- B. Sickle cell anaemia
- C. Colour blindness
- D. Turner's syndrome

Answer: D



422. Moody describes the mutation as

- A. Sports
- B. Saltation
- C. Factors
- D. Shotgun

Answer: C



423. Which of the following mutations is not hereditary

A. Genetic

B. Gametic

C. Somatic

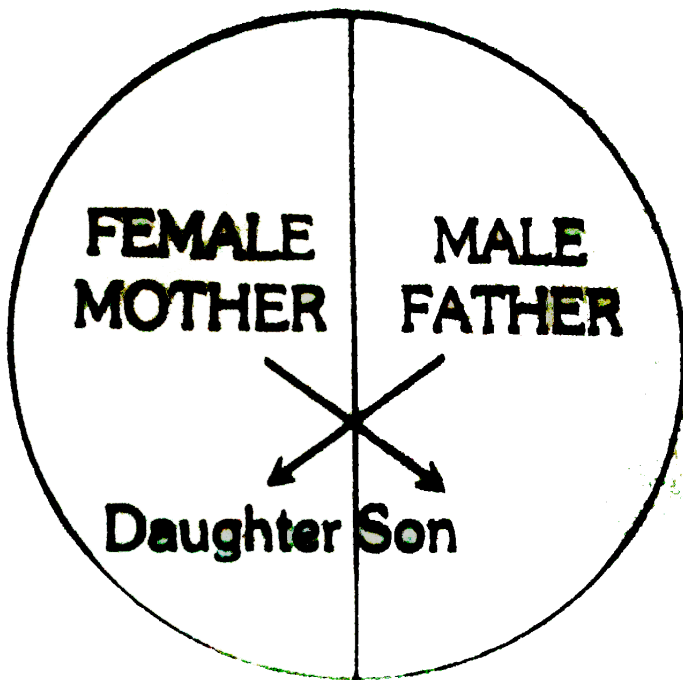
D. Germinal

Answer: C



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424. Represented below is the inheritance pattern of a certain type of traits in humans. Which one of the following conditions could be an example of this pattern



A. Phenylketonuria

B. Sickle cell anaemia

C. Haemophilia

D. Thalassemia

Answer: C



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425. What would be the number of chromosomes in the ovum (fertilized by a normal sperm) that resulted in the

appearance of Klinefelter's syndrome in the offspring

A. 23

B. 22

C. 21

D. 24

Answer: D



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426. A man whose father was colour blind marries a woman who had a colour blind mother and normal father. What percentage of male children of this couple will be colour blind

A. 0.5

B. 0.75

C. 0.25

D. 0

Answer: A



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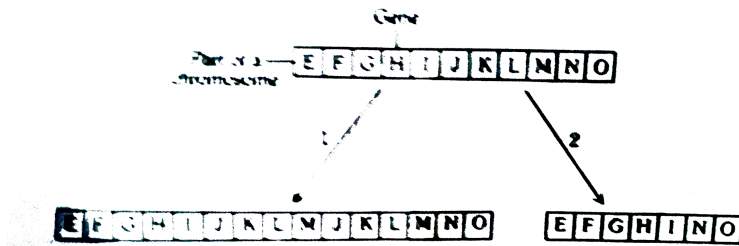
427. Trisomic condition of Down's syndrome arises due to

- A. Triploidy
- B. Translocation
- C. Non-disjunction
- D. Diecentric bridge formation

Answer: C



428. The given shows type of chromosome mutation



- A. 1-Inversion, 2-Substitution
- B. 1-Inversion, 2 Deletion
- C. 1- Duplication, 2- Substitution
- D. 1- Duplication, 2- Deletion

Answer: D



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429. Hugo de Vries formulated the "Mutation Theory" based on the experiments he conducted on

- A. *Althea rosea*
- B. *Pisum sativum*
- C. *Drosophila melanogaster*
- D. *Oenothera lamarckiana*

Answer: D



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430. A hereditary disease which is never passed on from father to son is

- A. Autosomal linked disease
- B. X-chromosomal linked disease
- C. Y-chromosomal linked disease
- D. None of these

Answer: B



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431. Somaclonal variations appear in plants:

- A. Growing in polluted soil or water
- B. Exposed to gamma rays
- C. Raised in tissue culture
- D. Transformed by recombinant DNA technology

Answer: C



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432. In *Drosophila* gene for white eye mutation is also responfor depigmentation of body parts. Thus a gene that controls several phenotypes is called

- A. Oncogene
- B. Epistatic gene
- C. Hyprostatic gene

D. Pleiotropic gene

Answer: D



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433. The functional unit of mutation is

A. Gene

B. Muton

C. Recon

D. Cistron

Answer: B



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434. The most striking example of point mutation is found in a disease called

- A. Night blindness
- B. Thalassemia
- C. Down's syndrome
- D. Sickle-cell anaemia

Answer: D



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435. Which following pair of disease is caused by two genes locted on human X-Chromosome

- A. Colour blindness and phenylketonuria
- B. Colour blindnes and haemophilia
- C. Colour blindness and albinisam
- D. Colour blindness and hypertrichosis

Answer: B



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436. Which of the following is not related to chromosomal aberration

A. Euploidy

B. AIDS

C. Aneuploidy

D. Klinefelter's syndrome

Answer: B



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437. Sickle-cell anaemia is

- A. Autosomal dominant inheritance
- B. X-linked recessive inheritance
- C. Autosomal recessive inheritance
- D. X-linked dominant inheritance

Answer: C



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438. The frequency of a mutant gene in a population is expected to increase, if the gene is

- A. Recessive
- B. Dominant
- C. Sex linked
- D. Favourably selected

Answer: D



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439. Albinism is due to nonsynthesis of melanin on account of absence of

- A. Catalase
- B. fructokinase
- C. Tyrosinase
- D. Xenthine oxidase

Answer: C



440. Sometimes chromosome number increase or decrease due to

A. NON-disjunction of chromosome

B. Genetic repete

C. Mutation

D. All of these

Answer: A



441. Match the following

List-I		List-II	
(A)	XX-XO, method of sex determination	(I)	♀ Heterogametic
(B)	1.5 X/A ratio	(II)	Turner's syndrome
(C)	Karyotype 45	(III)	Hemiptera
(D)	ZW-ZZ method of sex determination	(IV)	Metafemale

- A. $A \quad B \quad C \quad D$
 (a) $I \quad IV \quad III \quad II$
- B. $A \quad B \quad C \quad D$
 (a) $III \quad IV \quad II \quad I$
- C. $A \quad B \quad C \quad D$
 (a) $IV \quad I \quad II \quad III$
- D. $A \quad B \quad C \quad D$
 (a) $I \quad IV \quad II \quad III$

Answer: B



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442. The idea of mutations was brought forth
by

A. Hufo do Vries, who worked on evening

primose

B. Gregor Mendel, who worked on Pisum

sativum

C. Hardy Weinberg, who worked on allele frequencies in a population

D. Charles Darwin, who observed a wide variety of organisms during sea voyage

Answer: A



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443. Edward syndrome is on account of

A. 45 chromosmes instead of 46

B. Presence of three chromosomes on 18th pair of autosome

C. Presence of three chromosomes on 21st pair of autosome

D. Presence of three pair of sex chromosomes

Answer: B

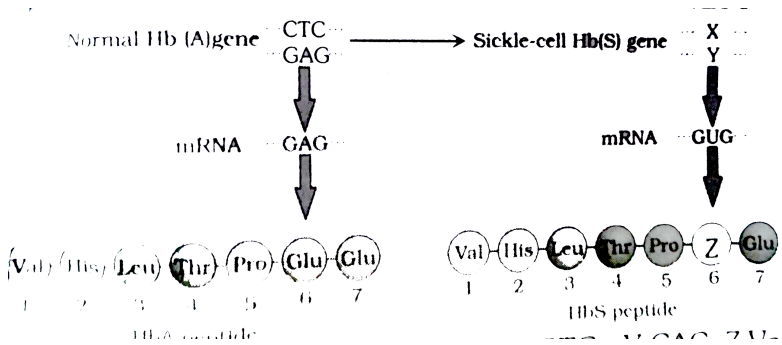


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444. Sickle-cell anaemia is an autosomal recessive trait that can be transmitted from parents to the offspring when both the partners are carriers for the gene (or heterozygous). The disease is controlled by a single pair of alleles, Hb^A & Hb^S . Out of the three possible genotypes only homozygous individuals for HbS ($Hb^S Hb^S$) are lethal. Select the right option in which X, Y and Z are

correctly

identified



- A. X-CAC,-Y GTG, Z His
- B. X - y GTG, - Y CAC, Z Val
- C. X - CAC, - Y GTG,Z Phe
- D. X - CAC, - Y GTG, Z Val

Answer: D



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445. Pick out the correct statements

(i) Haemophilia is a sex-linked recessive disease

(ii) Down's syndrome is due to aneuploidy

(iii) Phenylketonuria is an autosomal dominant gene disorder

(iv) Phenylketonuria is an autosomal recessive gene disorder

A. (i), (ii) and (v) are correct

B. (i) and (iii) are correct

C. (ii) and (v) are correct

D. (i) , (ii) ad (iv) are correct

Answer: D



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446. Match column I with column II and find

the

correct

answer

Column I	Column II
(A) Monoploidy	(1) $2n - 1$
(B) Monosomy	(2) $2n + 1$
(C) Nullisomy	(3) $2n + 2$
(D) Trisomy	(4) $2n - 2$
(E) Tetrasomy	(5) n
	(6) $3n$

A. (A) - (5), (B) - (1), (C) - (4), (D) - (2), (E) - (3)

B. (A) - (5), (B) - (2), (C) - (4), (D) - (1), (E) - (3)

C. (A) - (6), (B) - (5), (C) - (3), (D) - (4), (E) - (2)

D. (A) - (2), (B) - (1), (C) - (3), (D) - (6), (E) - (5)

Answer: A



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447. Height is

- A. Somatogenic variation
- B. Discontinuous variation
- C. Continuous variation
- D. Blastogenic variation

Answer: C



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448. Which one of the following is not a mutagen

A. Ethyl methane sulphonate

B. Acetic acid

C. Nitrous acid

D. Ethylene oxide

Answer: B



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449. Rate of mutation is affected by

A. Temperature

B. X-rays

C. Gamma and beta radiation

D. All of the above

Answer: D



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450. A mutation is most likely to have a selective advantage in evolution if

- A. It affects dominant genes
- B. It affects recessive genes
- C. It affects whole chromosomes
- D. The environment remains stable

Answer: B



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451. Which one of the following is a wrong statement regarding mutations

A. Deletion and insertion of base pairs cause frame-shift mutations

B. Cancer cells commonly show chromosomal aberrations

C. UV and Gamma rays are mutagens

D. Change in a single base pair of DNA does not cause mutation

Answer: D



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452. The gene for diabetes mellitus is

- A. Autosomal dominant
- B. Autosomal recessive
- C. Sex - linked dominant
- D. Sex linked recessive

Answer: A



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453. Gynaecomastia is the symptom of

A. Down syndrome

B. SARS

C. Turner's syndrome

D. Klinefelter's syndrome

Answer: D



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454. Which of the following is the main category of mutation

A. Genetic mutation

B. Zygotic mutation

C. Somatic mutation

D. All of these

Answer: D



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455. In human beings, multiple genes are involved in the inheritance of

- A. Colourblindness
- B. Phenylketonuria
- C. Sickle-cell anaemia
- D. Skin colour

Answer: D



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456. The formation of multivalents at meiosis in diploid organism is due to

A. Monosomy

B. Inversion

C. Deletion

D. Reciprocal translocation

Answer: D



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457. Mental retardation in man, associated with sex chromosomal abnormality is usually due to

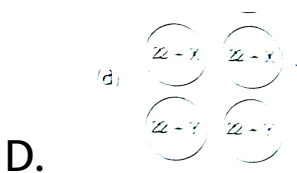
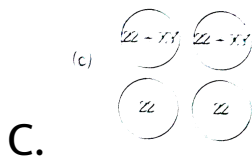
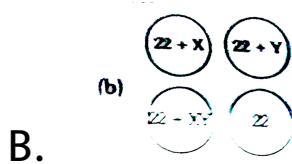
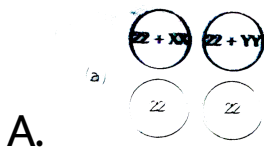
- A. Reduction in X complement
- B. Increase in X complement
- C. Moderate increase in Y complement
- D. Large increase in Y complement

Answer: B



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458. If chromosome complement $44+XY$ of a gamete mother cell suffers a non-disjunction at the of first meiotic division. Which sets of gametes will be correct



Answer: C



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459. If haploid chromosome number in a cell is 12. The monosomic number will be

A. 24

B. 21

C. 25

D. 23

Answer: D



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460. Normally DNA molecule has A-T, G-C pairing. However, these bases can exist in alternative valency status, owing to rearrangements called

- A. Point mutation
- B. Analogue substitution
- C. Frame-shift mutation

D. Huntington(1872)]

Answer: D



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461. Who reported that Down's syndrome is due to extra 21st chromosome

A. j.l Down (1866)

B. Lejeune (1959)

C. Klinefelter (1942)

D. Huntington(1872)]

Answer: A



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462. In agriculture mutation caused by a mutagen is

A. Natural

B. Chemical

C. Spontaneous

D. Induced

Answer: D



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463. Discontinuous variations are

A. Mutations

B. Acquired characters

C. Essential features

D. Nonessential features

Answer: A



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464. Epicanthal skin fold and simian crease are characteristics of:

- A. Haploidy
- B. Heteroploidy
- C. Turner's syndrome
- D. Down's syndrome

Answer: D



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465. UV radiations cause

- A. Formation of thymine dimers
- B. Deletion of base pairs
- C. Methylation of base
- D. Additon of base pairs

Answer: A



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466. A person may have one gene for normal heamoglobin and one gene for sickle cell haemoglobin. This heterozygous condition is called

- A. Genome
- B. Anaemia
- C. Gene trait
- D. Sickle cell trait

Answer: D



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467. If a diploid cell is treated with colchicine, then it becomes

- A. Tetraploid
- B. Diploid
- C. Triploid
- D. Monoploid

Answer: A



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468. Which one of the following mutation partially or fullt reverses the harmful effects of previous mutation

- A. Indirect suppression
- B. Intragenic mutation
- C. Intragenic mutation
- D. Suppressor mutation

Answer: D



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469. Polydactyly in man is due to

A. Autosomal dominant gene

B. Autosomal recessive gene

C. Sex-linked dominant gene

D. Sex linked recessive gene

Answer: A



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470. The number of chromosomes in Klinefelter's syndrome is

- A. 47 (44 + XXY)
- B. 47 (44 + XXX)
- C. 47 (46 + 1 chromosome 21)
- D. None of these

Answer: A



471. Philadelphia chromosome is

- A. 13th chromosome
- B. 22nd chromosome
- C. 17th chromosome
- D. 21st chromosome

Answer: B



472. Which of the following chromosomal constitution refers to Jacob's syndrome in human

A. $44 + XO$

B. $44 + XXY$

C. $44 + XYY$

D. $45 + XYY$

Answer: C



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473. The condition in which there are more than two complete set of chromosome is called

A. Polytene

B. Monoploidy

C. Polyploidy

D. Aneuploidy

Answer: C



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474. Down's syndrome is caused by an extra copy of chromosome number 21. What percentage of offspring produced by an affected mother and a normal father would be affected by this disorder

A. 0.25

B. 1

C. 0.75

D. 0.5

Answer: D



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475. Polyploidy can be induced the application of

A. Auxin

B. Kinetin

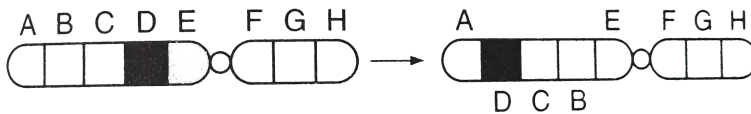
C. Colchicine

D. Ethylene

Answer: C



476. Given below is the representation of kind of chromosomal mutation what is the kind of mutation represented ?



A. Deletion

B. Duplication

C. Inversion

D. Reciprocal translocation

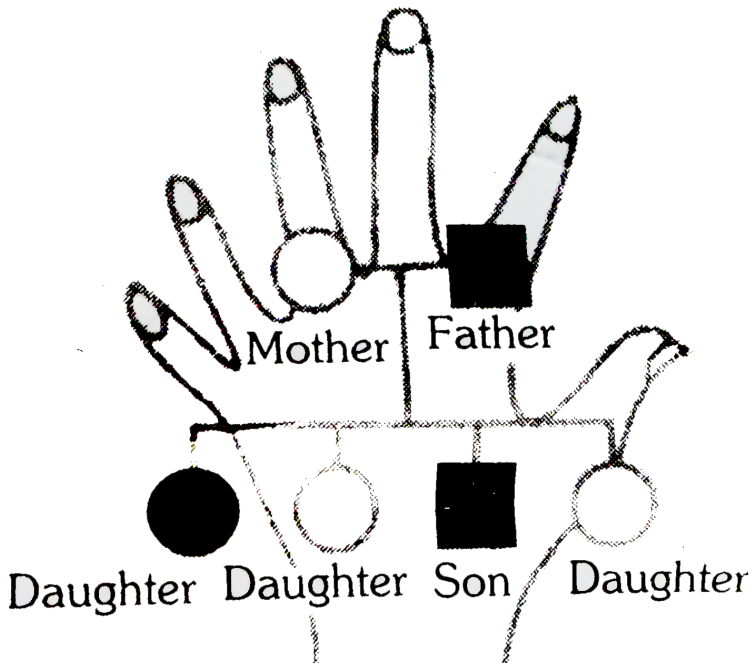
Answer: C



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477. In the given human hand pedigree which character is represented and what is the

probability of disease occurrence in fifth child



A. Polydactyly (X-linked recessive disorder

),50%

B. Polydactyly (X-linked dominant

disorder),50%

C. Polydactyly (autosomal recessive disorder), 50%

D. Polydactyly (autosomal dominant disorder), 50%

Answer: D



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478. A recessive mutant is one which is:

A. Is not expressed

B. Is rarely expressed

C. Is expressed only in homozygous and hemizygous state

D. Is expressed only in heterozygous state.

Answer: C



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479. Frequency of Down's syndrome increase when the maternal age is

A. Above 35 years

B. Below 35 years

C. During 1st pregnancy

D. In mothers of at least 3 children

Answer: A



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480. Addition or deletion of a single nucleotide results in which type of mutation

A. Deficiency

B. Duplication

C. Frameshift mutation

D. None of these

Answer: C



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481. Change in the number of body parts is called

A. Continuous variation

B. Discontinuous variation

C. Meristic variation

D. Substantive variation

Answer: C



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482. Turner's syndrome is an example of

A. Monosomy

B. Bisomy

C. Translocation

D. Trisomy

Answer: A



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483. In man, which of the following genotypes and phenotypes may be the correct result of aneuploidy in sex chromosomes

- A. 22 pairs + XXY males
- B. 22 pairs + XX females
- C. 22 pairs + XXXY females
- D. 22 pairs + Y females

Answer: A



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484. The "cri-du-chat" syndrome is caused by change in chromosome structure involving

A. Deletion

B. Duplication

C. Inversion

D. Translocation

Answer: A



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485. Somaclonal variation appears in plants

A. Organism produced through somatic hybridization

B. Plants growing in highly polluted conditions

C. Apomictic plants

D. Tissue culture raised plants

Answer: A



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486. Mutation cannot change

A. RNA

B. Environment

C. Enzyme

D. DNA

Answer: B



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487. Turner's syndrome in human caused by

- A. Autosomal aneuploidy
- B. Sex chromosome aneuploidy
- C. Polyploidy
- D. Point mutation

Answer: B



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488. Which of the following corresponds to mutagens

A. Chemicals and radiations which cause changes in the genetic material of a cell

B. Various archaebacteria that produce methane

C. Chemicals which react with ozone molecules and destroy them

D. RNA molecules that infect plant cells and
cause diseases

Answer: A



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489. Both sickle cell anaemia and Huntington's
chorea are

A. Pollutant-induced disorders

B. Virus-related diseases

C. Bacteria-related diseases

D. Congenital disorders

Answer: D



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490. Albinism is known to be due to an autosomal recessive mutation. The first child of a couple with normal skin pigmentation was an albino. What is the probability that their second child will also be an albino

A. 1

B. 0.25

C. 0.5

D. 0.75

Answer: B



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491. Failure of segregation of chromatids during cell division results in the gain or loss of chromosomes, this is called as

A. Aeuploidy

B. Euploidy

C. Reverse tandem duplication

D. Substantive mutation

Answer: B



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492. Addition of one or more haploid set of its own genome in an organism results in

A. Autopolyploidy

B. Allopolyploidy

C. Aneuploidy

D. Diploid

Answer: A



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493. Autosomal mutant allele HbS causes

A. Thalassemia

B. Albinism

C. Sickle cell anaemia

D. Agammaglobuliema

Answer: C



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494. Due to the nondisjunction of chromosomes during spermatogenesis, sperms carry both sex chromosomes (22A + XY) and some sperms do not carry any sex

chromosome (22A + O). If these sperms fertilise normal eggs (22A + X), what types of genetic disorders appear among the offsprings ?

A. Turner's syndrome and Klinefelter's syndrome

B. Down's syndrome and Klinefelter's syndrome

C. Down's syndrome and Turner's syndrome

D. Down's syndrome and cri-du-chat syndrome

Answer: A



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495. Genetic variation in a population arises due to

- A. Recombination only
- B. Mutations as well as recombination
- C. Reproductive isolation and selection
- D. Mutations only

Answer: B



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496. The chromosomal condition in Turner's syndrome is

or A human female with Turner's syndrome

- A. 21 Trisomy with XY
- B. 44 Autosomes +XXY
- C. 44 Autosomes +XYY
- D. 44 Autosomes +XO

Answer: D



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497. The change in single base pair

- A. Results in new species
- B. Always change the polypeptide chain
- C. May not change the phenotype
- D. Always changes the Phenotype

Answer: C



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498. Which is correct for Turner's syndrome ?

- A. It is a case of monosomy
- B. It causes sterility in females
- C. Absence of Barr body
- D. All the above

Answer: D



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499. The disease sickle-cell anaemia is caused by the substitution of (i) by (ii) at the (iii) position of (iv) globin chain of haemoglobin molecule

Which of the following correctly fills the blanks in the above statements ?

A. Valine by glutamic acid at sixth position of alpha chain of haemoglobin

B. Valine by glutamic acid at sixth position of beta chain of haemoglobin

C. Gluacid by valine at sixth position of
alpha chain of haemoglobin

D. Glutomic acid by valine at sixth position
of beta chain of haemoglobin

Answer: D



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500. If a colour blind man marries a woman who is normal but carries this trait, the progeny will be

- A. All normal females but carrier of the trait
- B. All males and 50 % females colour blind
- C. All females and 50 % males colour blind
- D. 50 % males and 50 % females colour blind

Answer: D



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501. Thalassemia and sickle cell anemia are caused due to a problem in globin molecule synthesis. Select the correct statement

A. Both are due to qualitative defect in globin chain synthesis

B. Both are due to a quantitative defect in globin chain synthesis

C. Thalassemia is due to less synthesis of globin molecules

D. Sickle cell anemia is due to a quantitative problem of globin molecules

Answer: C



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502. A disease caused by an autosomal primary non-disjunction is

A. Down's Syndrome

B. Klinefelter's Syndrome

C. Turner's Syndrome

D. Sickle Cell Anemia

Answer: A



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503. Sex chromosomes of a female bird are represented by

A. XO

B. XX

C. XY

D. ZW

Answer: D



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504. When released from ovary human egg contain

A. One Y chromosome

B. Two X chromosome

C. One X chromosome

D. XY chromosome

Answer: C



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505. Barr bodies (seen in saliva test in Olympic games) are found in human and are associated with

A. Male autosome

B. Female autosome

C. Female sex chromosome

D. Male sex chromosome

Answer: C



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506. The chromosomes responsible for the determination of sex are called

A. Autosomes

B. Allosomes

C. Multiple alleles

D. Heterosis

Answer: B



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507. Sex chromosomes for the first time was discovered in which plant

A. Sphaerocarpus

B. Pisum sativum

C. Neurospora

D. Lathyrus odoratus

Answer: A



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508. XO type of sex determination is seen in

A. Man

B. Grasshopper

C. Horses

D. Birds

Answer: B



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509. The barr body is observed in

A. Basophils of males

B. Neutrophils of females

C. Eosinophils

D. Neutrophils of males

Answer: B



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510. In *Drosophila*, the sex is determined by

A. Whether the egg is fertilized or develops parthenogenetically

B. The ratio of number of X-chromosomes to the sets of autosomers

C. X and Y chromosomes to the sets of autosomes

D. The ratio of pairs of X-chromosomes to the pairs of autosomes

Answer: B



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511. In XO type of sex determination

A. Females produce two different type of gametes

B. Males produce two different types of gametes

C. Females produce two different with Y chromosomes

D. Male produce single type of gametes

Answer: B



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512. Which type of gene regulate sex-determination in Spinach plant

- A. Homozygous genes
- B. Heterozygous genes
- C. Single gene
- D. Multiple genes

Answer: C



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513. The sex determination pattern in honeybee is called

- A. Female haploidy
- B. Haplodiploidy
- C. Gametic diploidy
- D. Gametogony

Answer: B



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514. Sex of a human child is determined by

A. Size of the egg at the time of fertilization

B. Size of the sperm at the time of fertilization

C. Sex chromosome of father

D. Sex chromosome of mother

Answer: C





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515. Lyon hypothesis deals with

- A. Centromere position
- B. Genetic compatibility
- C. Genetic incompatibility
- D. Number of Barr bodies

Answer: D



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516. Meta-females have

A. XX

B. XO

C. XXXX

D. XXXXXX

Answer: C



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517. Animal which remains male initially, then changes to female (Tapeworm proglottides) is called

A. Protandrous

B. Apomixis

C. Profixation

D. None of these

Answer: A



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518. Barr bodies and drumsticks are of what significance to genetists and biologists

- A. They indicate the presence of abnormal sex cells
- B. The indicate the presence of more than one X chromosome in the cells
- C. The indicate male calls
- D. They signify the presence of sex linked traits

Answer: B



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519. A family has five girls and no son.

Probability of son as the 6th child will be

A. 50 %

B. 75 %

C. Full

D. No chance

Answer: A



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520. Barr bodies are

- A. Chromatin negative
- B. Not influenced by stains
- C. Chromatin positive
- D. Poorly staining

Answer: B



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521. Chromosomal abnormality of an unborn baby (while in mother's womb) can be found out by a technique called

- A. Amniocentesis
- B. CAT scanning
- C. Ultrasound
- D. Tissue culture

Answer: A



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522. In our society women are blamed for producing female children. Choose the correct answer for the sex- determination in humans

- A. Due to some defect like aspermia in man
- B. Due to the genetic make up of the particular sperm which fertilizes the egg
- C. Due to the genetic make up of the egg
- D. Due to some defect in the women

Answer: B



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523. Foetal sex can be determined by examining cells from amniotic fluid looking for

- A. Barr bodies
- B. Chiasmata
- C. Sex chromosomes
- D. Kinetochores

Answer: A



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524. Chromosomes that determine male sex in Melandrium plant is

- A. Y chromosome
- B. X chromosome
- C. XX chromosome
- D. None of these

Answer: A



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525. Male child will be born if

A. Father is sexually more excited

B. Sperm of male with Y chromosome
fertilizes the egg

C. Sperm of male with X chromosome
fertilizes the egg

D. None of these

Answer: B



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526. Barr body in mammals represent

A. All the heterochromatin in female cells

B. One of the two X-chromosomes in
somatic cells of females

C. All the heterochromatin in male and female cells

D. The Y chromosome in somatic cells of male

Answer: B



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527. Based on Lyon's hypothesis, what will be the number of Barr bodies found in a human female suffering from Down's syndrome

A. 0

B. 1

C. 2

D. 3

Answer: B



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528. Drosophila flies with one half of the body male and other half female is referred to as
or

Loss of a X chromosome in a particular cell during its development, results into

A. Gyandromorph

B. Hermaphrodite

C. Super female

D. Intersex

Answer: A



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529. In human female, barr bodies are formed by

- A. Inactivation of mother's X chromosome
- B. Inactivation of father's X chromosome
- C. Inactivation of both mother's and father's X chromosome
- D. Inactivation of either mother's or father's X chromosome

Answer: A



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530. Gyandromorphs develop in *Drosophila* when the two cells in the two-called proembryo will have one of the following chromosomal sets

- A. $2A+XX$ in one cell and $2A+X$ in the other
- B. $2A+X$ in both the cells
- C. $2A+XXX$ in both the cells
- D. All of the above

Answer: A



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531. Genic balance theory of sex determination was proposed by

A. Morgan

B. Bridges

C. Boveri

D. Wilkins

Answer: B



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532. A medical technician while observing a human blood smear under the microscope notes the presence of barrbody close to the nuclear membrane in the WBC. This indicates that person under investigation is

A. Colour blind

B. Haemophilic

C. Normal female

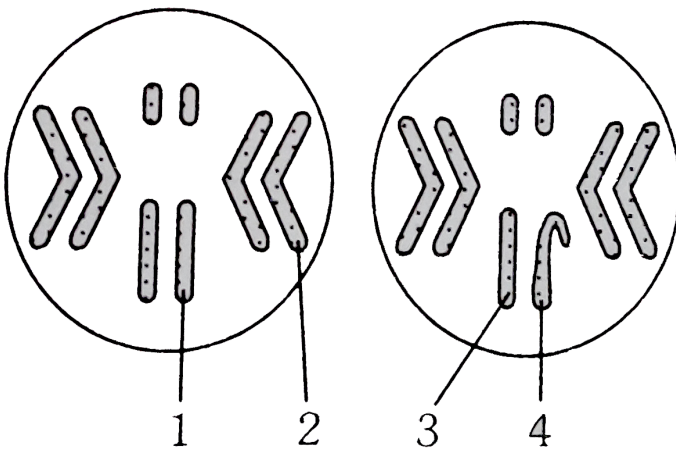
D. Normal male

Answer: C



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533. The following figure refer to the chromosome complement of each sex of fruit fly



By which number is a Y chromosome labelled

- A. 4
- B. 3
- C. 2
- D. 1

Answer: A



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534. Genetic identity of a human male is determined by

- A. Autosome
- B. Nucleolus
- C. Sex chromosome
- D. Cell organelles

Answer: C



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535. The theory where ratio between the number of X_ chromosomes and number of complete sets of autosomes will determine the sex is known as

A. Chromosome theory of sex determination

B. Genic balance theory of sex determination

C. Hormonal balance theory of sex determination

D. Environmental sex determination theory

Answer: B



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536. If somatic cells of a human male contain single barrbody, the genetic composition of the person would be
or

The genotype of a boy having sexual characters of a girl is

A. XYY

B. XXY

C. XO

D. XXXY

Answer: B



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537. Chromosome theory of sex determination was propounded by

A. Bridges

B. Balbiani

C. Goldschmidt

D. None of the above

Answer: D



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538. Identify the wrong statement

A. In male grasshoppers 50% of the sperms have no sex chromosome

B. Usually female birds produce two types of gametes based on sex chromosomes

C. The human males have one of their sex chromosomes much shorter than the other

D. In domesticated fowls the sex of the progeny depends on the type of sperm

that fertilizes the egg

Answer: D



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539. Random genetic drift in a population probably result from

A. Large population size

B. Highly genetically variable individuals

C. Interbreeding within small isolated population

D. Constant low mutation rate

Answer: C



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540. In melandrium the sex determination type is

A. XX-XY type

B. XX-XO type

C. ZZ-ZW type

D. XY-XO type

Answer: A



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

A. Homozygous sex chromosomes (XX)

produce male in *Drosophila*

B. Homozygous sex chromosomes (ZZ)

determine female sex in birds

C. XO type of sex chromosomes determine

male sex in grasshopper

D. XO condition in humans as found in

Turner Syndrome, determines female sex.

Answer: C



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542. A colour blind man marries the daughter of a colour blind person. Then in their progeny

- A. None of their daughters are colour blind
- B. All the sons are colour blind
- C. All the daughters are colour blind
- D. Half of their sons are colour blind

Answer: D



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543. Given is : X is the chromosome with gene for haemophilia and X is the chromosome with gene for haemophilia a X is the chromosome with normal gene. Which of the following individuals will act as carrier for haemophilia

A. $X^{th}Y$

B. XY

C. $X^h X^h$

D. $X^h X$

Answer: D



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544. More men suffer from colour blindness than women because

A. Women are more resistant to disease than men

B. The male sex hormone testosterone causes the disease

C. The colour blind gene is carried on the 'Y' chromosome

D. Men are hemizygous and one defective gene is enough to make them colour blind

Answer: D



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545. Sex-linked characters are

A. Dominant

B. Recessive

C. Lethal

D. Not inherited

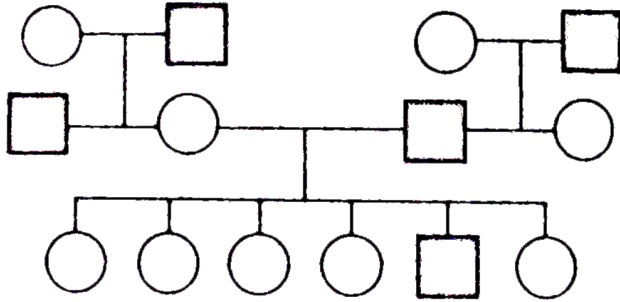
Answer: B



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546. This pedigree is of a rare trait, in which children have extra fingers and toes. Which one of the following patterns of inheritance is

consistent with this pedigree



- A. Autosomal recessive
- B. Autosomal dominant
- C. Y-linkage
- D. Sex linked recessive

Answer: C



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547. If mother is a carrier for colour blindness and father is normal, then in the offspring this disease may be seen in

A. All the sons

B. All the daughters

C. 50 % sons and 50 % daughters (carrier)

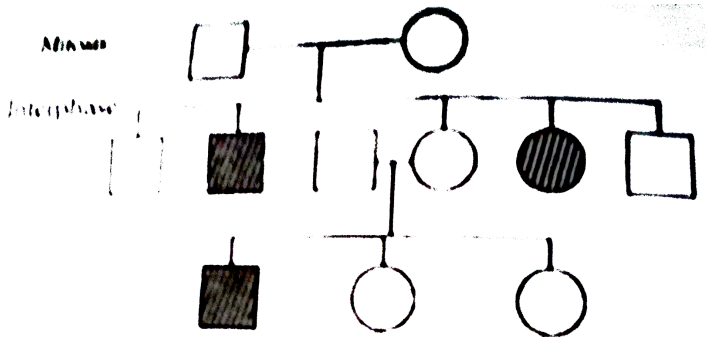
D. All the sons and not in daughters

Answer: C



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548. Study the pedigree chart given below



What does it show

- A. Inheritance of a sex-linked inborn error of metabolism like phenylketonuria
- B. Inheritance of a condition like phenylketonuria as an autosomal

recessive trait

C. The pedigree chart is wrong as this is not possible

D. Inheritance of a recessive sex-linked disease like haemophilia

Answer: B



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549. A man inherits his X chromosome from

- A. His maternal grand mother or maternal grand father
- B. His father
- C. His maternal grand father only
- D. His paternal grand father

Answer: A



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550. In a pedigree analysis, $\square = 0$ represents

- A. Unrelated mating
- B. Consanguinous mating
- C. Affected parents
- D. Siblings

Answer: B



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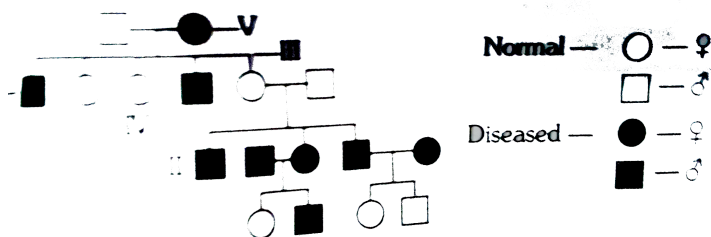
551. Select the incorrect statement from the following

- A. Linkage is an exception to the principle of independent assortment in heredity
- B. Galactosemia is an inborn error of metabolism
- C. Small population size results in random genetic drift in a population
- D. Baldness is a sex-limited trait

Answer: D



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552.

In the above given pedigree, assume that no outsider marrying in, carry a disease. Write the genotypes of II and III

A. All X^dY

B. X^DY and X^DX^d

C. X^dXX^dY and X^dY^D

D. $X^d X^d$ and $X^d Y$

Answer: C



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553. Which one of the following is a genetically transmitted character

A. Colour blindness

B. Hydrocephalus

C. Hemophilia

D. all of these

Answer: D



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554. A normal-visioned man whose father was colour-blind, marries a woman whose father was also colour-blind. They have their first child as a daughter. What are the chances that this child would be colour-blind

A. 50 %

B. 100 %

C. 0 %

D. 25 %

Answer: C



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555. A man who is suffering from a recessive X-linked disease marries a normal woman. Then what is true about its progeny

- A. All sons are diseased
- B. All daughter's are diseased
- C. All sons are normal
- D. None of the above

Answer: C



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556. Person whose father is colourblind marries a lady whose mother is daughter of a colourblind man. Their children will be

A. All normal

B. All colour blind

C. All sons colour blind

D. Some sons normal and some colour
blind


Answer: D



Watch Video Solution

557. Which one of the following symbols and its representation, used in human pedigree analysis is correct

A. (a)  = male affected

B. (b)  = mating between relatives

C. (c)  = unaffected male

D. (d)  = unaffected female

Answer: B



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558. 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. (A) and (D) are correct

B. (B) and (D) are correct

C. (A), (C) and (D) are correct

D. (A), (B) and (C) are correct

Answer: D



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559. The most common type of haemophilia results from the congenital absence of

A. Factor II

B. Factor V

C. Factor VIII

D. Factor XI

Answer: C



Watch Video Solution

560. Which of the following diseases belongs to the same category as colourblindness in man

A. Nightblindness

B. Presbyopia

C. Diabetes incipidus

D. Haemophilia

Answer: D



Watch Video Solution

561. X-linked recessive gene is

A. Always expressed in male

B. Always expressed in female

C. Lethal

D. Sub lethal

Answer: A



Watch Video Solution

562. If a colourblind woman marries and a normal visioned man, their sons will be

A. Three-fourths colourblind and one-fourth normal

B. All colourblind

C. All normal visioned

D. One-half colourblind and one-half normal

Answer: B



Watch Video Solution

563. A man known to be a victim of haemophilia marries a normal woman whose father was known to be a bleeder. Then it is expected that

A. All their children will be bleeders

B. Half of their children will be bleeders

C. One fourth of their children will be bleeders

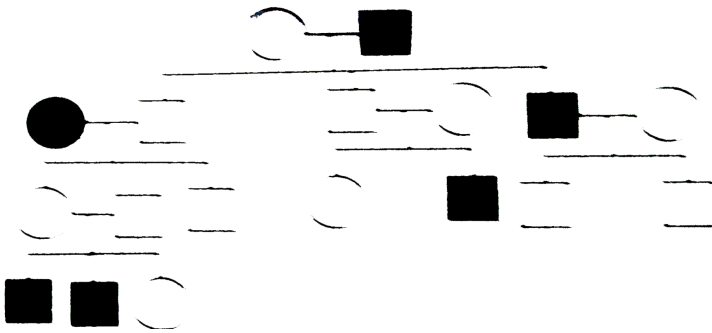
D. None of their children will be bleeder

Answer: B



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564. In the following human pedigree, the filled symbols represent the affected individuals. Identify the type of given pedigree



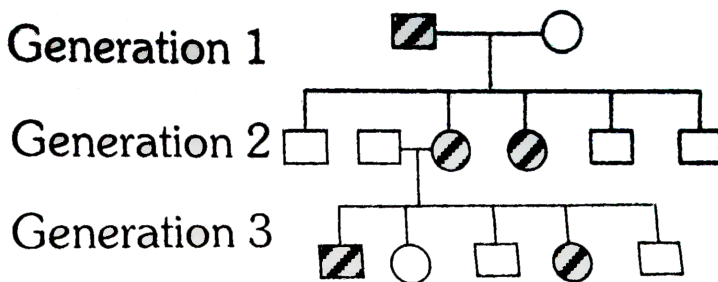
- A. X-linked recessive
- B. Autosomal recessive
- C. X-linked dominant
- D. Autosomal dominant

Answer: B



Watch Video Solution

565. Given below is a pedigree chart showing the inheritance of a certain sex-linked trait in humans



Key:

Key :

Unaffected male

Affected male

Unaffected female

Affected female

The trait traced in the above pedigree chart is

A. Dominant X-linked

B. Recessive X-linked

C. Dominant Y-linked

D. Recessive Y-linked

Answer: A



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566. Which of the following statement about colour blindness is correct

A. 2 % men are red colour blind, 6 % are green colour blind

B. 6 % men are red colour blind, 2 % are green colour blind

C. 10 % men are red colour blind, 5 % are green colour blind

D. 5 % men are red colour blind, 10 % are green colour blind

Answer: A



Watch Video Solution

567. Sex linked disease is

- A. Haemophilia
- B. Colourblindness
- C. Sickle-cell anaemia

D. Both (a) and (b)

Answer: D



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568. A woman with normal vision, but whose father was colour blind, marries a colour blind man. Suppose that the fourth child of this couple was a boy. Thus boy

- A. Will be partially colour blind since he is heterozygous for the colour blind mutant allele
- B. Must have normal colour vision
- C. Must be colour blind
- D. May be colour blind or may be of normal vision,

Answer: D



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569. A man and a woman, who do not show any apparent signs of a certain inherited disease, have seven children (2 daughters and 5 sons). Three of the sons suffer from the given disease but none of the daughters are affected which of the following mode of inheritance do you suggest for this disease

- A. Autosomal dominant
- B. Sex-linked dominant
- C. Sex-limited recessive
- D. Sex-linked recessive

Answer: D



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570. Which of the following is not a hereditary disease

- A. Cretinism
- B. Cystic fibrosis
- C. Thalassaemia
- D. Haemophilia

Answer: A



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571. If a boy's father has haemophilia and his mother has one gene for haemophilia, what is the chance that the boy will inherit the disease

A. 25 %

B. 50 %

C. 75 %

D. 100 %

Answer: B



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572. A colour blind 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 colour blind

A. 1

B. Nil

C. 0.25

D. 0.5

Answer: C



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573. Sickle cell anaemia is due to

A. Hormones

B. Viruses

C. Genes

D. Bacteria

Answer: C



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574. Sex linked inheritance was discovered by

A. McClung

B. Mendel

C. Landsteiner

D. Morgan

Answer: D



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575. Colour blindness is caused by a single

- A. Dominant gene in woman
- B. Dominant gene in man
- C. Recessive gene in man
- D. Recessive gene in woman

Answer: C



Watch Video Solution

576. The following 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 and circles the female individuals



Which one of the following conclusions drawn is correct

- A. The parents are homozygous dominant
- B. The parents are homozygous dominant
- C. The parents are heterozygous
- D. The trait is Y- linked

Answer: C



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577. Female rarely experience the physiologic defect of haemophilia because they do so only when they are

- A. Heterozygous for the defect
- B. Homozygous for the defect
- C. Carrier for the defect
- D. Wives of haemophilic husbands

Answer: B



Watch Video Solution

578. A colour blind son will be born when

A. Mother is normal and father normal

B. Mother is colour blind and father normal

C. Mother is normal and father is colour
blind

D. All the cases are correct

Answer: B



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579. Sex influenced characters are due to

A. Y-linked genes

B. X-linked genes

C. Autosomal genes

D. Y-linked gene modification

Answer: C



Watch Video Solution

580. A colourblind man has a colourblind sister but a normal brother than phenotype of its parents is

- A. Father colourblind and mother normal
- B. Father normal and mother colourblind
- C. Father and mother both are colourblind
- D. Father and mother both are normal

Answer: A



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581. The frequency of a character is found to be increasing when

- A. It is dominant
- B. It is recessive
- C. It is adaptable
- D. It is inheritable

Answer: D



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582. The female children of a haemophilic man and a carrier woman are likely to be

A. All haemophilic

B. Half haemophilic and half carriers

C. All carriers

D. Half normal and half carriers

Answer: B



Watch Video Solution

583. The daughter born to haemophilic father and normal mother could be

- A. Normal
- B. Carrier
- C. Haemophilic
- D. None

Answer: B



Watch Video Solution

584. Haemophilia is caused due to lack of

A. ADH

B. AHF

C. STH

D. ACTH

Answer: B



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585. A marriage between normal visioned man and colourblind woman will produce which of the following types of offsprings

A. Normal sons and carrier daughters

B. Colourblind sons carrier daughters

C. Colourblind sons and 50% carrier daughters

D. 50% colourblind sons and 50% carrier daughters

Answer: B



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586. Sex -linked genes of man are

A. Present on X-chromosome

B. Present on autosomes

C. Present on short arm (p) of Y-

chromosome present on long arm (q) Of

Y-chromosome

D. Present on long arm (q) of Y-chromosome

Answer: A



Watch Video Solution

587. A marriage between a colourblind man and a normal woman produces

A. All sons will be colourblind and daughters normal

B. All daughters will be colourblind and sons

normal

C. All children will be normal

D. All children will be colourblind

Answer: C



Watch Video Solution

588. A girl of normal vision whose father was colourblind marries a man of normal vision

whose father was also colourblind .their sons would be (o ftotal number of sons)

- A. All colourblind
- B. 50% colourblind
- C. All normal
- D. 25% colourblind

Answer: B



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589. All the sons are haemophilic and daughter are normal as a haemophilic father and normal mother. This character is

- A. X-linked recessive
- B. Y-linked recessive
- C. X-linked dominant
- D. Y-linked dominant

Answer: D



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590. In human the inheritance of sex linkage takes place through

- A. Autosome
- B. Y-chromosome
- C. X-chromosome
- D. Both (b) and (c)

Answer: D



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591. Haemophilia is more commonly seen in human males than in human females because

A. This disease is due to an X-linked dominant mutation

B. A greater proportion of girls die in infancy

C. This disease is due to an Z-linked recessive mutation

D. This disease is due to a Y-linked recessive mutation

Answer: C



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592. What are all the chances of colour blind daughter and sons being born in a marriage of normal man marrying a normal woman ,whose father was father was colour blind

A. All sons are normal and all daughters are colourblind

B. Both the sons and daughters are colourblind

C. All the sons are colourblind and all daughters are normal

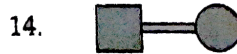
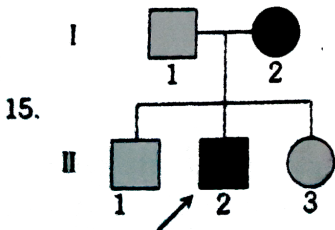
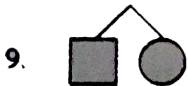
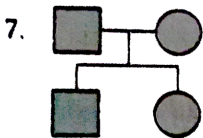
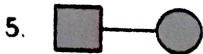
D. 50% sons are colourblind and all daughters are phenotypically normal

Answer: D



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593. Match the symbol with associated statement



A. Heterozygous individuals with autosomal recessive

B. Diseased (or death)

C. Female carrier of an X-linked recessive gene

D. Individuals with normal trait

E. Consanguineous mating (marriage of blood relatives)

F. Unknown sex

G. Mating

H. male

I. female

J. Affected individual

Abortion or still birth

A.	<i>B</i>	<i>C</i>	<i>E</i>	<i>F</i>
	6	4	14	12

B. 16 13 2 11

C. 3 1 2 7

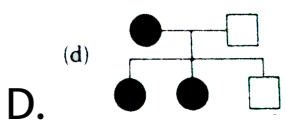
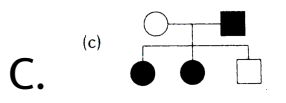
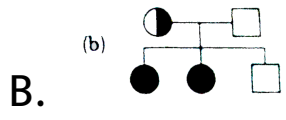
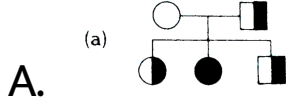
D. 16 1 2 7

Answer: A



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594. Wife is PTC non-taster and husband is PTC taster. Their son is taster but daughters are non-tasters. This is not a sex linked trait. Which pedigree is correct ?



Answer: D

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595. If a character is always transmitted directly from a father to all his sons and sons

from their sons to all their sons ,them which chromosome carriers the gane for the character

- A. Autosomes
- B. X-chromosome
- C. Y- chromosome
- D. one of the above

Answer: C



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596. A normal woman whose father was colorblind marries a normal man. What kinds of children would be expected and in what proportion?

A. Daughters normal, 50% of sons

colourblind

B. Daughters normal, all sons colourblind

C. 50% of daughters colourblind, all sons

normal

D. All daughters colourblind, sons normal

Answer: A



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597. A colourblind daughter is born when

- A. Father is colourblind mother is normal
- B. Mother of colourblind ,father is normal
- C. Mother is carrier ,father is normal
- D. Mother is carrier ,father is colourblind

Answer: D



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598. Barchydactyly is due to

- A. Dominant gene on the autosome
- B. Recessive gene on the autosome
- C. Dominant gene on the sex chromosome
- D. None of the above

Answer: A



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599. Which disease is genetically linked

A. Haemophilia

B. Dysentery

C. Plague

D. Tuberculosis

Answer: A



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600. Haemophilic man marries a normal woman
their offspring s will be

- A. All girls
- B. All normal
- C. All haemophilic
- D. All boys haemophilic

Answer: B



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601. When an allele fails to explain itself in presence of the other allele, the former is said to be

- A. Recessive
- B. Dominant
- C. Codominant
- D. Complementary

Answer: A



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602. A woman with genes for haemophilia and one gene for colourblindness on one of the X chromosomes marries a normal man. How will the progeny be

- A. All sons and daughters haemophilic and colourblind
- B. Haemophilic and colourblind daughters
- C. 50% haemophilic daughter and 50% normal sons

D. 50% haemophilic saughters and 50 %
colourblind daughters

Answer: C



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603. A fruit fly is heterozygous for sex -linked genes when mated with normal female fruit fly the males specific chromosome will enter eg cell in the proportion

A. 1:1

B. 2:1

C. 3:1

D. 7:1

Answer: A



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604. In which of the following colourblindness is inherited

A. In males only

B. Both the sons and daughters are
colourblind

C. In both males and female

D. In none of the above

Answer: C



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605. Persons who are colour blind cannot distinguish

- A. Red and green
- B. Black and yellow
- C. Green and blue
- D. Yellow and white

Answer: A



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606. Study the given pedigree chart of a certain family and select the correct conclusion which can be drawn for the character



- A. The famle parent is heterozygous
- B. The parents could not have a normol daughter for this cahacter
- C. The trait under syudy could not becolour -blindness

D. the male parent is homozygous dominant

Answer: A



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607. Expected children of a blue-eyed (recessive) woman and brown-eyed (dominant) man who had a blue-eyed mother are likely to be

A. All brown-eyed

B. One blue-eyed and one brown-eyed

C. All blue-eyed

D. Three blue-eyed and one brown-eyed

Answer: B



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608. Gene for colour blindness is located on

A. Homologous part X-chromosome

B. Non - Homologous part of X-chromosome

C. Homologous part of Y -chromosome

D. Non -homologous part of Y-chromosome

Answer: B



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609. Which of the following conditions is not X-linked

A. Colour blindness

B. Haemophilia

C. Down's syndrome

D. Myopia

Answer: D



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610. A diseased man marries a normal woman .they get three daughters and five sons ,All the

daughters were diseased and sons were normal .the gene of this disease is

- A. Autosomal dominant
- B. Sex linked recessive
- C. Sex limited character
- D. Sex linked dominant

Answer: D



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611. Pattern baldness, moustaches and beard and beard in human males are examples of

Or

The traits which are expressed in only a particular sex though their genes occur in the opposite sex too are known as

- A. Sex - determining traits
- B. Sex linked traits
- C. Sex limited traits
- D. Sex differentiating traits

Answer: C



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612. One of the genes present exclusively on the X-chromosome in humans is concerned with

- A. Baldness
- B. Red -green clourness
- C. Facial hair / moustaches in males
- D. Night blindness

Answer: B



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613. One of the following is not true to haemophilia

- A. Royal disease
- B. Bleeder's disease
- C. X-linked disease
- D. Y- linked disease

Answer: D



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614. Which one is the incorrect statement with regards to the importance of pedigree analysis

A. It confirms that DNA is the carrier of genetic information

B. It helps to understand whether the trait in question is dominant or recessive

C. It Confirms that the traits is linked to one of the autosome

D. It help to the inertance of a spific trait

Answer: A



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615. If a colour -blind man marries a woman who is homzygous for normal colour vision , the probailty of their son being colour -blind is

A. 1

B. 1

C. 0.5

D. 0.75

Answer: B



Watch Video Solution

616. A woman has an X-linked condition on one of her X chromosomes , this chromosome can be inherited by

- A. Only daughters
- B. Only sons
- C. Only grandchildren
- D. Both sons and daughters

Answer: D



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617. Fraternal twins are produced when

- A. A fertilized egg divided into two

B. An egg is fertilized by two set sperms

C. A divided egg has two set of chromosomes

D. Two eggs are fertilized simultaneously

Answer: D



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618. Identical twins are

A. Heterozygous

B. Homozygous

C. Monozygotic

D. Dizygotic

Answer: C



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619. An organism which receives identical alleles of a particular gene from both parents is

A. Heterozygote

B. Holometabolus

C. Homosapiens

D. Homozygote

Answer: D



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620. Study of improvement of human race by providing ideal nature is

Or

Improvement of genetic characters and

present day generation on the basis of best
nutrition and training is called

- A. Eugenics
- B. Euphenisc
- C. Euthenics
- D. None of these

Answer: C



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

A. Marriage restrictions

B. Sterilizations

C. Control of immigrations

D. Sexual separation of defective

Answer: D



Watch Video Solution

622. Study of human race is called

- A. Eugenics
- B. Entomology
- C. Ecology
- D. Pathology

Answer: A



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623. Eugenics pertains to

- A. Improvement of mankind by improving his heredity
- B. Preserving human sperms for artificial insemination
- C. Study of human genetics
- D. Controlling size of a human family

Answer: A



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624. Sometimes the separations of twins is incomplete and these are born attached or remain so even after . Such twins are known as

Or

Conjoint twins are also known as

A. Fraternal

B. Dizygotic

C. Identical

D. Siamese

Answer: D



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625. Genetically identical progeny is produced when an individual

- A. Practices self-fertilization
- B. Produces identical gametes
- C. Practices reproduction
- D. Practices in breeding without meiosis

Answer: B



626. Twin is

- A. Developed from same zygote
- B. Developed from different zygote
- C. two different sperm
- D. Two different sperm

Answer: A



627. Two offspring developed in the same uterus but from fertilization of two different ova are

- A. Dizygotic twins
- B. Monozygotic twin
- C. Fraternal twins
- D. Both (a) and (c)

Answer: D



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628. All gens located on the same chromosome

A. From different groups depending upon their relative distance

B. From one linkage group

C. Will not from any linkage groups

D.

Answer: B



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629. Conditions of a karyotype

$2n \pm 1$ and $2n \pm 2$ are called

- A. Aneuploidy
- B. Polyploidy
- C. Allipolyploidy
- D. Monosomy

Answer: A



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630. Distance between the genes and percentage of recombination shows

- A. A directly relationship
- B. An inverse relationship
- C. A parrllel realtionship
- D. No relationship

Answer: A



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631. If a genetic disease is transferred from a phenotypically normal but carrier female to only some of the male progeny, the disease is

- A. Autosomal dominant
- B. Autosomal recessive
- C. Sex-linked dominant
- D. Sex-linked recessive

Answer: D



Watch Video Solution

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

A. G G G

B. A A G

C. G A A

D. G U G

Answer: D



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633. Person having genotype $I^A I^B$ would show the blood group as AB. This is because of

A. Pleiotropy

B. Co-dominance

C. Segregation

D. Incomplete dominance

Answer: B



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634. ZZ/ZW type of sex determination is seen in

A. Platypus

B. Snails

C. Cockroach

D. Peacock

Answer: D



Watch Video Solution

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

A. TT and Tt

B. Tt and Tt

C. TT and TT

D. Tt and Tt

Answer: B



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636. In a dihybrid crossm if you get 9:3:3:1 ratio it denotes that

- A. The alleles of two genes ar interacting with each other
- B. It is a multigenic inheritance
- C. It is case of multiple alleism
- D. The alleles of two genes are segregating independently

Answer: D



637. Which of the following will not result in variations among siblings ?

- A. Independent assortment of genes
- B. Crossing over
- C. Linkage
- D. Mutation

Answer: C



638. Mendel's law of independent assortment holds good for genes situated on the

- A. Non-homologous chromosomes
- B. Homologous chromosomes
- C. Extra nuclear genetic element
- D. Same chromosome

Answer: A



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639. Occasionally, a single gene may express more than one effect. The phenomenon is called

A. Multiple allelism

B. Mosaicism

C. Pleiotropy

D. Polygyny

Answer: C



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640. In a certain taxon of insects some have 17 chromosomes and the others have 18 chromosomes. The 17 and 18 chromosome-bearing organisms are

- A. Males and females ,respectively
- B. Females and males, respectively
- C. All males
- D. All females

Answer: A



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641. The inheritance pattern of a gene over generations among human is studied by the pedigree analysis. Character studied in the pedigree analysis is equivalent to

- A. Quantitative trait
- B. Mendelian trait
- C. Polygenic trait
- D. Maternal trait

Answer: B



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642. It is said that Mendel proposed that the factor controlling any character is discrete and independent. His proposition was based on the

A. Results of F_3 generations of a cross

B. Observations that the offspring characters show only one character without any blending

C. Self pollination of F_1 offsprings

D. Cross pollinations of F_1 generation with
recessive parent

Answer: B



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643. Two gens 'A' and 'B' are linked . In a dihybrid cross involving these two genes the F_1 heterozygote is corssed with homozygous

recessive parental type (aa bb). What would be the ratio of offspring in the next generations

A. 1, 1: 1: 1

B. 9, 3: 3: 1

C. 3: 1

D. 1: 1

Answer: D



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644. In the F_2 generation a Mendelian dihybrid cross the number of phenotypes and genotypes are

- A. Phenotypes-4, genotypes -16
- B. Phenotypes-9, genotypes -4
- C. Phenotypes-4, genotypes -8
- D. Phenotypes-4, genotypes -9

Answer: D



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645. 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



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646. Which is Gynandromorph type of animal

A. *Drosophila*

B. Beetles

C. Silk works

D. All of the above

Answer: D



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647. The segregation of paired hereditary factors that Mendel postulated occurs during

A. Anaphase of first meiotic division

B. Metaphase of second meiotic divisions

C. During interphase between two meiotic divisions

D. Prophase of first meiotic division

Answer: A



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648. A cell at telophase stage is observed by a student in a plant brought from the field. He tells his teacher that this cell is not like other

cells at telophases stage. There is no formation of cell plate and thus cell is containing more number of chromosomes as compared to other dividing cells. This would result in

- A. Aneuploidy
- B. Polyploidy
- C. Somaclonal variation
- D. Polyteny

Answer: B



649. Match the terms in column-I with their description in column-II and choose the correct option

	Column I		Column II
(a)	Dominance	(i)	Many genes govern a single character
(b)	Codominance	(ii)	In a heterozygous organism only one allele expresses itself
(c)	Pleiotropy	(iii)	In a heterozygous organism both alleles express themselves fully
(d)	Polygenic inheritance	(iv)	A single gene influences many characters

- A. (a) (b) (c) (d)
 (ii) (i) (iv) (iii)

- B. (a) (b) (c) (d)
(ii) (iii) (iv) (i)
- C. (a) (b) (c) (d)
(iv) (i) (ii) (iii)
- D. (a) (b) (c) (d)
(iv) (iii) (i) (ii)

Answer: B



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

A. Disruptive

B. Directional

C. Stabilizing

D. Coevolution

Answer: B



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651. A tobacco plant heterozygous for recessive character is self-pollinated and 1200 seeds are subsequently germinated. How

many seedlings would have the parental genotype ?

A. 300

B. 600

C. 900

D. 1200

Answer: B



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652. Match the column I, II and III

	Column I		Column II		Column III
(A)	Sickle Cell Anaemia	(i)	Due to recessive PP genes	(P)	Strangeness of colour in place of Calabam and
(B)	Phenyl Ketouria	(ii)	Due to absence of homogentisic oxidase enzyme	(Q)	libam error of metabolism
(C)	Alkaptonuria	(iii)	Follows Mendelian Principles	(R)	Urine turns black when exposed to air
(D)	Thalassaemia	(iv)	Characters caused by homozygous recessive genes	(S)	The required haemoglobin is not generated in the blood

A. (A-ii-S)(B-iii-R)(C-i-Q)(D-iv-P)

B. (A-iv-P)(B-i-Q)(C-ii-R)(D-ii-S)

C. (A-iv-P)(B-iii-R)(C-i-S)(D-ii-R)

D. (A-iii-R)(B-i-Q)(C-iv-P)(D-ii-S)

Answer: B



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653. Find the odd one out, with respect to X-linkage

A. Haemophilia

B. Myopia

C. Nephritis

D. Night blindness

Answer: C



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654. In case of incomplete dominance in F_2 generation

A. Genotypic ratio is 3:1

B. Phenotypic ratio is 3:1

C. Genotypic ratio =phenotypic ratio

D. Nothing can be concluded

Answer: C



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655. One of the parents of a cross has a mutation in its mitochondria. In that cross, that parent is taken as a male. During segregation of F_2 progenies that mutation is found in

- A. All the progenies
- B. Fifty percents of the progenies
- C. One-third of the progenies
- D. None of the progenies

Answer: D



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656. When a cell with 40 chromosomes undergoes meiosis, each of the four resulting cells has



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657. Chromosomal number in a cell of flowering plant is

- A. Only haploid
- B. Only diploid
- C. Many than five
- D. None of these

Answer: C



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658. How many genome types are present in a typical green plant cell



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659. Find out the correct statement

A. Two

B. Three

C. More than five

D. More than ten

Answer: C



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660. Match the items in Column-I Column-II
and choose the correct alternative

	Column - I		Column - II
A.	Sickle-cell anaemia	1.	7 th chromosome
B.	Phenylketonuria	2.	4 th chromosome
C.	Cystic fibrosis	3.	11 th chromosome
D.	Huntington's disease	4.	X-chromosome
E.	Colour blindness	5.	12 th chromosome

A. A-1, B-3 , C-4 ,D-2 ,E-5

B. A-2, B-3 , C-4 ,D-5 ,E-1

C. A-2, B-1 , C-3 ,D-5 ,E-4

D. A-3, B-5 , C-1 ,D-2 ,E-4

Answer:



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661. Which of the following statements is correct

A. In honey -bee , functional male does not undergo meiosis during gametic heterogametic

B. In flagellaria, male is heterogametic

C. In Bonellia, a hormone- like substance secreted by the proboscis is responsible for femaleness,

D. due to the additions of one extra 'X' chromosome in Drosophila in

uninucleated state gynandromorphy is
observed

Answer: A



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662. If an inheritable mutation is observed in a population at high frequency it is referred to as

A. Sequence annotation

B. DNA polymorphism

C. Linkage

D. Expressed sequence Tag

Answer: B



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663. The cause of Cat-cry syndrome is due to

A. Loss of a segment of X-chromosome

B. Loss of a segment of 5th chromosome

C. Loss of segment of Y-chromosome

D. None of the above

Answer: B



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664. When two genes are situated very closed to each other in a chromosome

A. The percentage of crossing over between them is very high

B. Hardly any cross over are detected

C. No crfossing over can take place
between them

D. Only duble cross overs can take place
between them

Answer: B



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665. Who is know as father of physiological genetics or father of biochemical genetics

A. Slatyper

B. Charles Elton

C. Taylors

D. Archibald Garrod

Answer: D



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666. When a cluster of genes shows linkage behaviour they

- A. Induce cell division
- B. Do not show a chromosome map
- C. Show recombination during meiosis
- D. Do not show independent assortment

Answer: D



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667. Which of the following best illustrates FEEDBACK in development

A. Tissue (X) secretes RNA which changes the development of tissue (Y)

B. As tissue (X) develops, it secretes something that induces tissue (Y)

C. As tissue (X) develops, it secretes something that induces tissue (Y) to develop

D. As tissue (X) develops, it secretes something that slows down the growth of tissue (Y)

Answer: D



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668. Match the column I with column II and choose the correct options

Column I

- A. Incomplete dominance
- B. Linkage
- C. Transforming principle
- D. Proved that DNA is the Genetic material

Column II

- i. **Hershey and Chase**
- ii. ***Antirrhinum sp***
- iii. **Griffith**
- iv. **Morgan**

A. A-I, B-iv, C-iii,D-ii

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

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

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

Answer:



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669. The fruit fly *Drosophila melanogaster* was found to be very suitable for experimental verification of chromosomal theory on inheritance by Morgan and his colleagues because

- A. It reproduces parthenogenetically
- B. A single mating produces two young flies
- C. Smaller female is easily recognisable from larger male

D. It completes life cycle in about two weeks

Answer: D



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670. The exchange of one part of a chromosome to the other part of some or another chromosome is called

Or

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

- A. Inversion
- B. Mutation
- C. Translocation
- D. Linkage

Answer: C



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671. If the number of chromosomes in most body cells of a mammal is 40, the cells the seminiferous tubule will have

- A. 40 chromosomes
- B. 20 chromosomes
- C. 10 chromosomes
- D. While some other will have 20

Answer: D



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672. How many nucleosomes are found in helical coil of 30 nm chromatin fibre

A. 10

B. 12

C. 06

D. 09

Answer: C



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673. Biological marriage of one the following should be avoided

Or

After examining the blood groups of a couple the doctor advised them not to have more than one child. The blood group of the couple are likely to be

Or

In which of the following situations is there a risk factor for children of incurring erythroblastosis foetalis

A. Rh^+ male and Rh^- female

B. Rh^+ male and Rh^+ female

C. Rh^- male and Rh^+ female

D. Rh^- male and Rh^- female

Answer: A



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674. Primary source of allelic variation is

A. Independent assortment

B. Recombination

C. Mutation

D. Polyploidy

Answer: B



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675. Persons with the following syndrome have a tendency of tall structure, mental defects and a strong antisocial behaviour

A. XYY syndrome

B. Down's syndrome

C. Klinefelter's syndrome

D. Turner's syndrome

Answer: A



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676. Recessive characters are expressed

A. Only when they are present on X

chromosomes of male

B. Only when they are present on X

chromosomes of female

C. On any autosome

D. On both the chromosomes of female

Answer: A



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677. Marriage between close relatives should be avoided because it induces more:

A. More mutations can occur

B. More recessive defects are likely to appear

C. More chance there for Rh blood group anomalies

D. More chances are there for multiple births

Answer: B



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678. In a medico legal case of accidental interchange between two babies in a hospital, the baby of the blood group 'A' could not be rightly given to a couple with:

- A. With both husband and wife of group O
- B. Husband of group O and wife of group A
- C. Husband of group A and wife of group O
- D. Both husband and wife of group A

Answer: A



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679. For finding the different types of gametes produced by genotype $AaBb$, it should be crossed with genotype

A. $aaBB$

B. $AaBb$

C. $AABB$

D. $aabb$

Answer: D





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680. Each chromosome at anaphase stage of bone marrow cell in our body has

- A. Two chromatids
- B. No chromatids
- C. Only one chromatid
- D. Several chromatids

Answer: A



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681. A child of blood group O cannot have parents of blood groups

A. AB and O

B. B and O

C. A and B

D. A and A

Answer: A



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682. Identical twins are born when:

- A. One fertilized egg divided into 2 blastomeres and both separate
- B. One sperm fertilizes two eggs
- C. One eggs fertilized with two sperms
- D. Two eggs are fertilized

Answer: A



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683. The process of genetic mutations is

A. Reversible

B. Irreversible

C. Partially reversible

D. Continuous

Answer: B



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684. Allelic sequence variations where more than one variant (allele) at a locus in a human population with a frequency greater than 0.01 is referred to as

- A. Incomplete dominance
- B. Multiple allelism
- C. SNP
- D. DNA polymorphism

Answer:



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685. A man with blood group 'AB' marries a woman with 'O' blood groups, In this situation:

- A. The blood group of their children will be the same as that of the mother
- B. The blood group of the children differs from both the parents,
- C. While 50% of children will have father's blood group. The remaining will have

mother's blood group

D. None of above

Answer: B



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686. Knowing that albinism determined by a recessive gene in man' presence of albinism in children born to a couple proves that

A. Both the father and the mother are heterozygous for albinism

B. The father is homozygous for albinism but the mother is heterozygous or vice versa

C. The father is homozygous normal but the mother is heterozygous or vice versa

D. (a) and (b)

Answer: D



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687. A woman of blood group O presented a baby of blood group O which she claimed as her child. She brought a suit against a man of 'AB' group as the father of the child. Which statement is correct as per your judgment

A. The father and mother claimed are the true persons

B. Father is true and mother is not the true persons

C. Both the parentage claims are false.

D. Mother is the true person and father claimed is not true

Answer: D



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688. A normal woman whose father was albino marries an albino, what proportion of normal and albino can be expected among their offspring ?

A. 1 normal :1 albino

B. All albino

C. 2 normal :1 albino

D. All normal

Answer: A



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689. As a result of marriage of curly hair mother and straight hair father, 8 children are

born. The ratio of curly and straight haired will be

A. 6:2

B. 2:6

C. 4:4

D. 3:5

Answer: C



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690. transition type of mutation is caused when :

- A. GC is replaced by TA
- B. CG is replaced by GC
- C. AT is replaced by CG
- D. At is replaced by GC

Answer: D



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691. Euploidy is best explained by

A. Exact multiple of a haploid set of chromosomes

B. One chromosome less than the haploid set of chromosomes

C. One chromosome more than the haploid set of chromosomes

D. One chromosome more than the diploid set of chromosomes

Answer: A



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692. Match list I with list II and select the correct answer using code given below

List I: syndrome

1. Patau's syndrome (2) Kline-Felter's syndrome
3. Down's syndrome (4) Turner's syndrome

List II: Chromosomal abnormality)

- A. $44 - XXY = 47$
B. $44 - X = 45$
C. $46 - 1 = 47$. Chromosome 13st
D. $46 - 1 = 47$. Chromosome 21st

A. 1 2 3 4
A B C D

B. 1 2 3 4
D C B A

C. 1 2 3 4
 C *B* *D* *A*

D. 1 2 3 4
 C *A* *D* *B*

Answer: D



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693. Select the correct statement

A. Franklin stahl coined the term "linkage"

B. Punnett square was developed by a

British scientist

C. Spliceosomes take part in translation

D. Transduction was discovered by a Allman

Answer: B



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694. Which of the following is wrongly matched.

A. Starch synthesis in pea :
Multiple alleles

B. ABO blood grouping : Co-dominance

C. XO type sex determinations :

Grasshopper

D. T.H. Morgan : Linkage

Answer: A



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695. Assertion : Some asexual variations may be present in plants produced from callus.

Reasons : Somaclonal variations are caused due to recombination during meiosis.

A. If both the assertion and the reason are true and the reason is a correct explanation of the assertion

B. If both the assertion and reason are true but the reason is not a correct explanation of the assertion

C. If the assertion is true but the reason is false

D. If both the assertion and reason are false

Answer: C



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

Reason : Sex in humans is a polygenic trait depending upon a cumulative effect of some

genes on X-chromosome and some on Y-chromosome .

A. If both the assertion and the reason are true and the reason is a correct explanation of the assertion

B. If both the assertion and reason are true but the reason is not a correct explanation of the assertion

C. If the assertion is true but the reason is false

D. If both the assertion and reason are false

Answer: C



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697. Assertion : Persons suffering from haemophilia fail to produce blood clotting factor . VIII.

Reason : Prothrombin producing platelets in

such persons are found in very low
concentration

A. If both the assertion and the reason are
true and the reason is a correct
explanation of the assertion

B. If both the assertion and reason are true
but the reason is not a correct
explanation of the assertion

C. If the assertion is true but the reason is
false

D. If both the assertion and reason are false

Answer: C



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698. Assertion : Mustard gas acts as a mutagen

It transfers alkyl groups to the bases in DNA.

A. If both the assertion and the reason are true and the reason is a correct explanation of the assertion

B. If both the assertion and reason are true but the reason is not a correct explanation of the assertion

C. If the assertion is true but the reason is false

D. If both the assertion and reason are false

Answer: A



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699. Assertion : The DNA fingerprint is the same for every cell, tissue and organ of a person.

Reason : DNA fingerprint is used of treatment of inherited disorders like Huntigton's disease, Alzhemir's and Sickle anaemia.

A. If both the assertion and the reason are true and the reason is a correct explanation of the assertion

B. If both the assertion and reason are true but the reason is not a correct explanation of the assertion

C. If the assertion is true but the reason is false

D. If both the assertion and reason are false

Answer: C



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700. Assertion: The chimpanzee is the closest relative of the present day humans

Reason: The banding pattern in some autosomes of man and chimpanzee is remarkable similar.

A. If both the assertion and the reason are true and the reasons is a correct

explanation of the assertion

B. If both the assertion and reason are true

but the reason is not a correct

explanation of the assertion

C. If the assertion is true but the reason is

false

D. If both the assertion and reason are

false

Answer: A



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701. Assertion : If pollen mother cells has 21 chromosomes.

Reason : Pollens are formed after meiosis in pollen mother cells

A. If both the assertion and the reason are true and the reasons is a correct explanation of the assertion

B. If both the assertion and reason are true but the reason is not a correct

explanation of the assertion

C. If the assertion is true but the reason is

false

D. If both the assertion and reason are

false

Answer: A



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702. Assertion : Clones are produced by sexual reproduction and same sexual process.

Reason : These are prepared by group of cells descended from many cells or by inbreeding of a heterozygous line.

A. If both the assertion and the reason are true and the reason is a correct explanation of the assertion

B. If both the assertion and reason are true but the reason is not a correct

explanation of the assertion

C. If the assertion is true but the reason is

false

D. If both the assertion and reason are

false

Answer: D



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703. Assertion : Hybrids are generally back crossed.

Back cross is done to increase the traits of the parents.

A. If both the assertion and the reason are true and the reason is a correct explanation of the assertion

B. If both the assertion and reason are true but the reason is not a correct explanation of the assertion

C. If the assertion is true but the reason is false

D. If both the assertion and reason are false

Answer: A



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704. Assertion : A gene may have several alleomorphs.

Reason : Wild form can mutate in more than one ways.

A. If both the assertion and the reason are true and the reason is a correct explanation of the assertion

B. If both the assertion and reason are true but the reason is not a correct explanation of the assertion

C. If the assertion is true but the reason is false

D. If both the assertion and reason are false

Answer: A



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705. Assertion : Phenylketonuria is a recessive hereditary disease caused by the body 's failure to oxidize an amino acid phenylalanine to tyrosine , because of a defective enzyme.

Reason : It results in the presence of phenylalanine acid in the urine .

A. If both the assertion and the reason are true and the reason is a correct explanation of the assertion

B. If both the assertion and reason are true but the reason is not a correct explanation of the assertion

C. If the assertion is true but the reason is false

D. If both the assertion and reason are false

Answer: A



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706. Assertion : The genetic complement of an organism is called genotype

Reason : Genotype is the type of hereditary properties of an organism.

A. If both the assertion and the reason are true and the reason is a correct explanation of the assertion

B. If both the assertion and reason are true but the reason is not a correct explanation of the assertion

C. If the assertion is true but the reason is false

D. If both the assertion and reason are false

Answer: A



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707. Assertion : Holandric genes are found on Y chromosome .

Reason : Inheritance of Holandric genes are always from father to son.

A. If both the assertion and the reason are true and the reasons is a correct explanation of the assertion

B. If both the assertion and reason are true
but the reason is not a correct
explanation of the assertion

C. If the assertion is true but the reason is
false

D. If both the assertion and reason are
false

Answer: b



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708. Assertion : Haemophilia never occurs in women.

Reason : Gene for hemophilia is located on X chromosome.

A. If both the assertion and the reason are true and the reason is a correct explanation of the assertion

B. If both the assertion and reason are true but the reason is not a correct explanation of the assertion

C. If the assertion is true but the reason is false

D. If both the assertion and reason are false

Answer: a



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709. Assertion : Haploids are used to study mutation.

Reason : Most of the mutations are recessive.

A. If both the assertion and the reason are true and the reason is a correct explanation of the assertion

B. If both the assertion and reason are true but the reason is not a correct explanation of the assertion

C. If the assertion is true but the reason is false

D. If both the assertion and reason are false

Answer: A



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710. Assertion : The shapes of chromosomes is based on the position of centromere.

Reasons : During anaphase, the chromosomes bends in the region of centromere.

A. If both the assertion and the reason are true and the reasons is a correct explanation of the assertion

B. If both the assertion and reason are true
but the reason is not a correct
explanation of the assertion

C. If the assertion is true but the reason is
false

D. If both the assertion and reason are
false

Answer: A



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711. Assertion : Heterochromatin is genetically inactive.

Reason. : It lacks genes.

A. If both the assertion and the reason are true and the reason is a correct explanation of the assertion

B. If both the assertion and reason are true but the reason is not a correct explanation of the assertion

C. If the assertion is true but the reason is false

D. If both the assertion and reason are false

Answer: C



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712. Assertion : Kinetochor helps in the movement of chromosomes.

Reason : It has points for attachment of microtubules .

A. If both the assertion and the reason are true and the reason is a correct explanation of the assertion

B. If both the assertion and reason are true but the reason is not a correct explanation of the assertion

C. If the assertion is true but the reason is false

D. If both the assertion and reason are false

Answer: A



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713. Assertion : Restriction endonuclease recognize short palindromic. Sequence and cut at specific sites.

Reason : When a restriction endonuclease acts

on Palindrome, it cleaves both the the strands of DNA molecules.

A. If both the assertion and the reason are true and the reasons is a correct explanation of the assertion

B. If both the assertion and reason are true but the reason is not a correct explanation of the assertion

C. If the assertion is true but the reson is false

D. If both the assertion and reason are false

Answer: B



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714. Assertion : The lampbrush, chromosomes are called diplotene chromosomes bivalents.

Reason : The number of loops is maximum during diplotene.

A. If both the assertion and the reason are true and the reason is a correct explanation of the assertion

B. If both the assertion and reason are true but the reason is not a correct explanation of the assertion

C. If the assertion is true but the reason is false

D. If both the assertion and reason are false

Answer: B



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715. Assertion : In humans , most sex-linked genes are present on the X chromosome.

Reason : Human chromosome contains a large number of genes with major effects on phenotype.

A. If both the assertion and the reason are true and the reason is a correct

explanation of the assertion

B. If both the assertion and reason are true

but the reason is not a correct

explanation of the assertion

C. If the assertion is true but the reason is

false

D. If both the assertion and reason are

false

Answer: A



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716. Assertion : Human chromosome have been studied through banding technique.

Reason : Banding technique is useful in studying chromosomal aberrations.

A. If both the assertion and the reason are true and the reasons is a correct explanation of the assertion

B. If both the assertion and reason are true but the reason is not a correct

explanation of the assertion

C. If the assertion is true but the reason is

false

D. If both the assertion and reason are

false

Answer: A



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