



# BIOLOGY

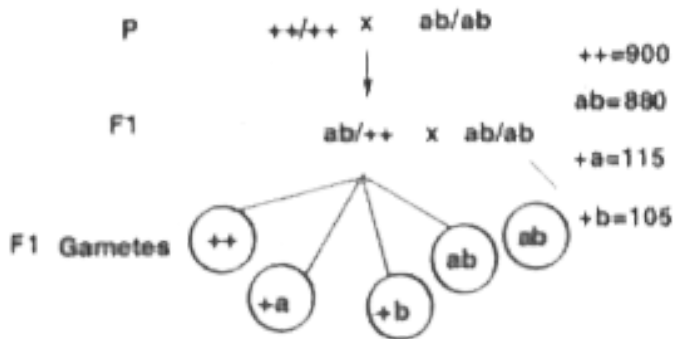
## BOOKS - AAKASH SERIES

# PRINCIPLES OF INHERITANCE AND VARIATION

### Model Problem

1. Individuals homozygous for ab genes were crossed with wild type (++). The  $F_1$  hybrid thus

produced was test crossed. It produces progeny in following proportion.



Now, calculate the distance between a and b genes.

 [Watch Video Solution](#)

2. The following results are obtained in several dihybrid test crosses in an organism

considering three genes loci Aa,Bb and Cc.

a. In test cross with AaBb the number of recombinants and parental combinations are 50 and 950 respectively.

b. In TC with AaCc the number of Rc and PC are 75 and 425 respectively.

c. In TC with BbCc the number of RC and PC are 160 and 640 respectively.

basing on the above result identify the gene loci of the three genes /prepare a genetic map of the three genes.



**Watch Video Solution**

## Exercise I

1. The process of transmission of parental characters to the offspring is

- A. Variations
- B. Heredity
- C. Mendelism
- D. Hybridization

**Answer: B**



**Watch Video Solution**

2. Characteral resemblances among same progeny and also with their parents is possible. The reason is

A. Lack of segregation

B. Gene cloning

C. Inheritance

D. Gene revolution

**Answer: C**



**Watch Video Solution**

3. The difference in characters among same progeny is due to

- A. variations
- B. gene manipulation
- C. cloning of genes
- D. lack of alleles

**Answer: A**



**Watch Video Solution**

4. The main cause for the discovery of laws of heredity by Mendel.

A. He analysed every trait independently

B. He was lucky that he did not come across linkage

C. His plants were true breeding

D. All of the above

**Answer: D**



**Watch Video Solution**

5. Mendel called the fundamental physical unit of heredity as

A. Gene

B. Unit factor

C. Cistron

D. Operon

**Answer: B**



**Watch Video Solution**



6. The year 1900 was important for generation because of

- A. Discovery of gene
- B. Discovery of linkage
- C. Chromosomal basis of heredity
- D. Rediscovery of Mendel's work

**Answer: D**



**Watch Video Solution**

7. Mendel published the results of his experiments in

A. 1866

B. 15687

C. 1921

D. 1773

**Answer: A**



**Watch Video Solution**

8. Mendel's work was rediscovered by

A. Charles Darwin

B. T.H. Morgan

C. K. Correns, Tschermak and H. de Vries

D. W. Bateson and R.C. Punnett.

**Answer: C**



**Watch Video Solution**

9. The first fruitful results in the study of inheritance of biological traits were obtained by

A. Shull

B. T.H. Morgan

C. G.J. Mendel

D. Punnet & Bateson

**Answer: C**



**Watch Video Solution**

**10.** The following well known Indian breeders developed through selection process

A. Ongole bulls

B. Sahiwal cows

C. Sahiwal bulls

D. 1 & 2

**Answer: D**



**Watch Video Solution**

11. During sexual reproduction, characters are transmitted through

A. Any vegetative cell

B. Gametes

C. Propagules

D. Clones

**Answer: B**



**Watch Video Solution**

12. Number of pairs of characters used by Mendal during his experiments were

A. Ten

B. Six

C. Seven

D. Two

**Answer: C**



**Watch Video Solution**

13. Which of the following characters of pea was not studied by Mendel?

A. Length of stem

B. Colour of plant

C. Shape of pod

D. Colour of pod

**Answer: B**



**Watch Video Solution**



**14.** The hereditary variations are due to

- A. Asexual reproduction
- B. Sexual reproduction
- C. Vegetative reproduction
- D. All of these

**Answer: B**



**Watch Video Solution**

15. Which term represents a pair of contrasting characters?

A. Homozygous

B. Heterozygous

C. Complementary genes

D. Allelomorphs

**Answer: D**



**Watch Video Solution**

**16. Alleles are:**

A. Homologous chromosomes

B. Linked genes

C. Dominant genes

D. Alternate forms of a gene

**Answer: D**



**Watch Video Solution**

17. The location of a particular gene of a given chromosome is ?

A. Gene pool

B. Genotype

C. Genetic kelp

D. Gene locus

**Answer: D**



**Watch Video Solution**

18. When the maternal and paternal chromosomes of a homologous pair carry identical alleles at the same locus, the organism is

A. Homozygous

B. Holozygous

C. Heterozygous

D. Hemizygous

**Answer: A**



**Watch Video Solution**

19. When the maternal and paternal chromosomes carry different alleles at the same locus, the genotype is called

A. Homozygous

B. Heterozygous

C. Heterokont

D. Heterokaryotic

**Answer: B**



**Watch Video Solution**

20. In *Pisum sativum* experimental error is minimum because

- A. They are self pollinated
- B. The hybrids produced are fertile
- C. Large number of off spring is obtained
- D. They are pure lines

**Answer: C**



**Watch Video Solution**

21. Match the following and select the correct option

List - I	List - II
A) Color of pod	I) Yellow
B) Color of flower	II) Green
C) Color of cotyledon	III) White
D) Color of seed coat	IV) Grey
	V) Violet

The correct match is

- A.  $\begin{matrix} A & B & C & D \\ I & V & II & IV \end{matrix}$
- B.  $\begin{matrix} A & B & C & D \\ II & II & I & IV \end{matrix}$
- C.  $\begin{matrix} A & B & C & D \\ II & V & I & I \end{matrix}$
- D.  $\begin{matrix} A & B & C & D \\ II & V & I & III \end{matrix}$



**Answer: C**



**Watch Video Solution**

**22. All allelomorphic pair implies**

- A. a pair of contrasting characters
- B. a pair of non contrasting characters
- C. any two characters
- D. sex linked characters

**Answer: A**



Watch Video Solution

**23.** Laws of inheritance are the base to the scientific explanation of

A. Heredity

B. Variations

C. Eugenics

D. 1 and 2

**Answer: D**



24. A cross was made between tall and dwarf plant. In  $F_1$  plants were selfed, the tall and dwarf plants appeared in 3:1 ratio in  $F_2$  generation. This phenomenon is known as

- A. Dominance
- B. Segregation
- C. Hybridization
- D. Crossing over

**Answer: B**



**Watch Video Solution**

**25.** The trait that is expressed in homozygous and heterozygous conditions

- A. Codominant trait
- B. Dominant trait
- C. Recessive trait
- D. Incomplete dominant trait

**Answer: B**



**Watch Video Solution**

**26.** Dwarf pea was treated with gibberellic acid. It became as tall pea plants. If these pea plants are crossed with pure tall plants. What will be the phenotype ratio in  $F_2$  generation?

- A. All dwarf plants
- B. 50 % tall and 50% dwarf plants
- C. 75% tall and 25% dwarf plants

D. 100% tall plants

**Answer: C**



**Watch Video Solution**

27. Which of the following crosses would result in 1:2:1  $F_2$  ratio?

A.  $Yy \times yy$

B.  $Yy \times Yy$

C.  $YY \times yy$

D.  $Yy \times yy$

**Answer: D**



**Watch Video Solution**

**28.** If the frequency of a recessive phenotype in a stable population is 25%, the frequency of the dominant allele in that population is:

A. 0.5

B. 0.75

C. 0.25

D. 0.1

**Answer: A**



**Watch Video Solution**

**29.** A red flowered plant when crossed with white flowered plant, it gave red flowered plants in  $F_1$  generation. The gene for red colour is considered as:



A. Recessive

B. Assorted

C. Sex-linked

D. Dominant

**Answer: D**



**Watch Video Solution**

**30.** In monohybrid cross, What is the possibility of obtaining genotype TT, tt and Tt respectively in  $F_2$  generation :

A. 44200

B. 44198

C. 44259

D. 44230

**Answer: A**



**Watch Video Solution**

**31.** In a typical monohybrid cross % of  $F_2$  resembling the  $F_1$  genotypically

A. 100

B. 75

C. 50

D. 25

**Answer: B**



**Watch Video Solution**

**32.** In a typical monohybrid cross % of  $F_2$  resembling the  $F_1$  phenotypically

A. 100

B. 75

C. 50

D. 25

**Answer: C**



**Watch Video Solution**

**33.** In a typical monohybrid cross % of  $F_2$  resembling the  $F_1$  phenotypically

A. 100

B. 75

C. 50

D. 25

**Answer: D**



**Watch Video Solution**

**34.** In a typical monohybrid cross % of  $F_2$  resembling the  $F_1$  genotypically

A. 100

B. 75

C. 50

D. 25

**Answer: B**



**Watch Video Solution**

**35.** Percentage of pure individuals in  $F_2$  of a monohybrid cross

A. 100

B. 75

C. 50

D. 25

**Answer: C**



**Watch Video Solution**

**36.** The ratio of homozygous and hetrozygous organisms in the  $F_2$  of monohybrid cors

A. 1 : 1

B. 3 : 1

C. 1 : 3

D. 1 : 2

**Answer: A**



**Watch Video Solution**

**37.** The ratio of homozygous and hetrozygous organisms in the  $F_2$  of monohybrid cors



A. 1:1

B. 1:2

C. 1:2:1

D. 2:1

**Answer: D**



**Watch Video Solution**

**38.** The ratio of homozygous violet color flower pea plants and heterozygous violet colour flower pea plants obtained in the  $F_2$

generation of a typical Mendelian monohybrid cross is

A. 3:1

B. 1:1

C. 1:2

D. 2:1

**Answer: C**



**Watch Video Solution**

39. When a green pod containing pea plant is crossed with a yellow pod containing pea plant in the progeny yellow pod containing plants are also produced, so green pod containing plant is

A. only heterozygous

B. only homozygous

C. may be homozygous or heterozygous

D. may be homozygous

**Answer: A**



Watch Video Solution

40. What shall be the genotypic ratio in  $F_2$  generation of monohybrid cross?

A. 3:1

B. 1:2:1

C. 1:1:1

D. None of the above

**Answer: B**



**41.** How many different kinds of gametes are produced by the  $F_1$  offspring from a cross between pure strain of plants with yellow peas and a pure strain of plants with green peas?

A. 1

B. 2

C. 3

D. 8

**Answer: B**



**Watch Video Solution**

**42.** A true breeding tall pea plant crossed with the true breeding dwarf plant gave  $F_1$  selfing resulted in 787 tall and 277 dwarf plants in  $F_2$  generation. The  $F_1$  plants are

- A. Homozygous
- B. Heterozygous
- C. Azygous

D. Polyzygous

**Answer: B**



**Watch Video Solution**

**43.** Law of dominance and recessiveness was the result of

A. Back -cross

B. Incomplete dominance

C. Dihybrid cross

D. Monohybrid cross

**Answer: D**



**Watch Video Solution**

**44.** The geometrical devic that helps in visualizing all the possible combinations of male and female gametes is known as

A. Batgeson square

B. Morgan square



C. Punnett square

D. Mendel square

**Answer: C**



**Watch Video Solution**

**45.** The characters that are expressed in the first generation are called

A. Dominant characters

B. Recessive characters

C. Both recessive and blend characters

D. None of the above

**Answer: A**



**Watch Video Solution**

**46.** Mendel's principle of segregation was based on the separation of alleles in the garden pea during:

A. Embryonic development

B. Seed formation

C. Gamete formation

D. Pollination

**Answer: C**



**Watch Video Solution**

47. Progeny are phenotypically and genotypically similar in

A.  $F_2$  generation

B.  $F_3$  generation

C.  $F_4$  generation

D.  $F_1$  generation

**Answer: D**



**Watch Video Solution**

**48.** In the monohybrid cross the  $F_1$  hybrid produces two kinds gametes each with only one character. It is explained as

A. Inherited factor

B. Purity of gametes

C. Alleles

D. Heterozygous

**Answer: B**



**Watch Video Solution**

**49.** How many types of combinations of gametes are possible in a monohybrid  $F_1$  parents

A. Two

B. Four

C. Six

D. Eight

**Answer: A**



**Watch Video Solution**

**50.** Mendel's law of segregation is based upon the  $F_2$  ratio of

A. 1:2

B. 3:1

C. 9:3:3:1

D. 1:1

**Answer: B**



**Watch Video Solution**

**51.** The postulate of Mendel that cannot be explained with monohybrid cross

A. Unit factors in pairs

B. Dominance /recessive

C. Segregation of unit factors

D. Independent assortment of unit factors

**Answer: D**



**Watch Video Solution**

**52.** The genotype of a dominant phenotype

A. Only homozygous



B. Only heterozygous

C. Either homozygous or heterozygous

D. Neither homozygous nor heterozygous

**Answer: C**



**Watch Video Solution**

**53.** Match following columns and identify the correct match.

**Column - I****Column-II**

- A) Monohybrid cross
- B) Test cross
- C) Alleles
- D) Homozygous tall

- p) T and t
- q) TT
- r) TT X Tt
- s) tt
- t) TT X Tt

A. A=r,B=p,C=t,D=q

B. A=r,B=t,C=p,D=q

C. A=r,B=t,C=s,D=q

D. A=t,B=r,C=q,D=s

**Answer: B**



**Watch Video Solution**

**54.** A gamete normally contains

- A. many alleles of a gene
- B. all alleles of a gene
- C. two alleles of a gene
- D. one allele of a gene

**Answer: D**



**Watch Video Solution**

55. Coloured seed coat (S) is dominant over white seed coat (s). When a white seed coat (ss) plant is crossed with coloured seed coat (Ss) plant the seed coat colour of newly developed plant will be

A. White

B. Coloured

C. Coloured and white in the ratio of 1:1

D. Mosaic

**Answer: C**



Watch Video Solution

56. When a grey color seed producing pea plant is crossed to white color seed producing pea plant, in the progeny 164 grey seed producing and 156 white seed producing plants are obtained. This cross is

- A. Reciprocal cross
- B. Test cross
- C. Incomplete dominance

## D. Codominance

**Answer: B**



**Watch Video Solution**

57. A cross between  $F_1$  plant with a plant which is phenotypically and genotypically similar to any parent is called

A. Test cross

B. Back cross

C. Hybrid cross

D. Inbred cross

**Answer: B**



**Watch Video Solution**

**58.** Total types of gametes produced in monohybrid back cross



$Tt$  and



plants

A. One

B. Two

C. three

D. None

**Answer: C**



**Watch Video Solution**

**59.** The genotypic ratio and phenotypic ratio of back cross and test cross of a Mendelian monohybrid respectively



A. 3:1 and 1:1

B. 1:1 and 1:1

C. 1:3 and 3:1

D. 1:2 and 1:1

**Answer: B**



**Watch Video Solution**

**60.** Identify the cross in which the genotypic ratio of  $F_2$  is 1:2:1

A. Monohybrid cross

B. Codominance

C. Incomplete dominance

D. All these

**Answer: D**



**Watch Video Solution**

**61.** The phenotypic ratio of incomplete dominance in  $F_2$  is

A. 3:1

B. 1:2:1

C. 1:3

D. 1:1

**Answer: B**



**Watch Video Solution**

**62.** The phenotypic ratio of co dominance in

$F_2$  is

A. 3:1

B. 1:2:1

C. 1:1

D. 1:3

**Answer: B**



**Watch Video Solution**

**63.** MN blood type is an example for

A. Incomplete dominance

B. Codominance

C. Partial dominance

D. Complete dominance

**Answer: B**



**Watch Video Solution**

**64.** More than two allelic forms existing for certain genes is termed as

A. Pleiotropy

B. Polygenic traits

C. Epistasis

D. Multiple alleles

**Answer: D**



**Watch Video Solution**

**65.** The following pair of human blood group genes are codominant.

A.  $I^O I^O$

B.  $I^A I^O$

C.  $I^B I^O$

D.  $I^A I^B$

**Answer: D**



**Watch Video Solution**

**66.** In a multiple allele system, a gamete to have

A. One

B. Two

C. Three

D. Many

**Answer: A**



**Watch Video Solution**

**67.** The genotype of blood group 'A' is

A.  $I^A I^A / I^A I^O$

B.  $I^B I^B / I^B I^O$



C.  $I^A I^B$

D.  $I^O I^O$

**Answer: A**



**Watch Video Solution**

**68.** The genotype of blood group 'B' is `

A.  $I^A I^A / I^A I^O$

B.  $I^B I^B / I^B I^O$

C.  $I^A I^B$

D.  $I^O I^O$

**Answer: B**



**Watch Video Solution**

**69.** The genotype of blood group 'AB' is `

A.  $I^A I^A / I^A I^O$

B.  $I^B I^B / I^B I^O$

C.  $I^A I^B$

D.  $I^O I^O$

**Answer: C**



**Watch Video Solution**

**70.** The genotype of blood group 'O' is

A.  $I^A I^A / I^A I^O$

B.  $I^B I^B / I^B I^O$

C.  $I^A I^B$

D.  $I^O I^O$

**Answer: D**



Watch Video Solution

71. The number of types of blood group phenotypes that can be produced by the human blood groups alleles A,B, and O is

A. One

B. Two

C. Three

D. Four

**Answer: D**



Watch Video Solution

72. The number of types of genotypes that can be produced by the multiple alleles A, B, O that determine human blood groups is

A. Three

B. Four

C. Five

D. Six

**Answer: D**



[Watch Video Solution](#)

**73.** Blood trasfusion is not possible between

- A. O (donar)-A(recipient)
- B. O(donar)-B(recipient)
- C. O(donar)-AB(recipient)
- D. O(recipient)-AB(donar)

**Answer: D**



[Watch Video Solution](#)

74. The following blood group is called universal donar

A. A

B. B

C. AB

D. O

**Answer: D**



**Watch Video Solution**

75. The following blood group is called universal recipient

A. A

B. B

C. AB

D. O

**Answer: C**



**Watch Video Solution**



76. Each of the progeny have 25% chance of their blood group being O/A/B/AB when their parents are

A.  $A \times AB$

B.  $O \times AB$

C.  $A \times B$

D.  $AB \times AB$

**Answer: C**



**Watch Video Solution**

77. A, AB and B blood groups are formed in 1:2:1 ratio by

A.  $I^A I^B \times I^A I^B$

B.  $I^A I^B \times I^A I^B$

C.  $I^B I^O \times I^A I^B$

D. All these

**Answer: B**



**Watch Video Solution**

78. A couple has only A and O blood group children in 3:1 ratio if father's blood group is A, mother's blood group is

A. O

B. A

C. A or O

D. B

**Answer: B**



**Watch Video Solution**

79. Genotype of A-group father of O-group child would be

A.  $I^A I^A$

B.  $I^A i$

C.  $I^A I^B$

D.  $ii$

**Answer: B**



**Watch Video Solution**

**80.** A child of blood group O cannot have parents of blood groups

A. B and B

B. A and B

C. O and O

D. AB and O

**Answer: D**



**Watch Video Solution**

**81.** A gene influencing many traits is

A. Additive

B. Pleiotropic

C. Epistatic

D. Supplementary

**Answer: B**



**Watch Video Solution**

**82.** Source of mendelian recombination is

A. Linkage

B. Independent assortment

C. Mutations

D. Dominant traits

**Answer: B**



**Watch Video Solution**

**83.** Sickle cell anaemia is an example of

A. Epistasis

B. Codominance

C. Pleiotropy

D. Incomplete dominance

**Answer: C**



**Watch Video Solution**



84. In a cross of four O'clock plants in the progeny half pink flower plant and half white flower plants are produced, the genotype of plants crossed is

A.  $R^1 R^1 \times R^2 R^2$

B.  $R^1 R^2 \times R^1 R^2$

C.  $R^1 R^2 \times R^2 R^2$

D.  $R^1 R^1 \times R^1 R^1$

**Answer: C**



Watch Video Solution

**85.** In *Pisum sativum* pleiotropic factor influences

A. The color of flower and the color of pod

B. The color of pod and the color of cotyledon

C. The color of seed coat the color of flower

D. The color of cotyledon and the color of seed coat

**Answer: C**



**Watch Video Solution**

**86.** If a plant is heterozygous tall and produced tall as well as dwarf in  $F_2$  generation it represents the law of

- A. Dominance
- B. Purity of gametes
- C. Independent assortment
- D. Free recombination

**Answer: C**



**Watch Video Solution**

**87.** Which of the following depicts phenotypic ratio of dihybrid cross?

A. 3: 1

B. 9: 3: 3: 1

C. 3: 4

D. 9: 4: 4: 2

**Answer: B**



**Watch Video Solution**

**88.** In a dihybrid cross the ratio of pure double dominants and pure double recessive individuals in  $F_2$  generation

A. 9: 7

B. 1: 9

C. 2: 16

D. 1: 1

**Answer: D**



**Watch Video Solution**

**89.** Number of kinds of genotypes in  $F_2$  generation of mendel's dihybrid cross

A. 4

B. 9

C. 2

D. 1

**Answer: B**



**Watch Video Solution**

**90.** Number of kinds of genotypes in  $F_2$  generation of mendel's dihybrid cross

A. 4

B. 9

C. 2

D. 1

**Answer: D**



**Watch Video Solution**

**91.** Number of kinds of phenotypes in  $F_2$  generation of mendel's dihybrid cross

A. 5

B. 6

C. 8

D. 4



**Answer: C**



**Watch Video Solution**

**92.** When true breeding pea plant with yellow cotyledons are round seeds is crossed to a plant with green cotyledons and wrinkled seeds the genotype of progeny will be

A. YYRR

B. Yyrr

C. YyRr

D. yyRr

**Answer: B**



**Watch Video Solution**

**93.** The number of kinds of gametes produced by a dihybrid is

A. 2

B. 4

C. 6

D. 8

**Answer: C**



**Watch Video Solution**

**94.** In a typical dihybrid cross the  $F_2$  phenotypic ratio is

A. 3:1

B. 1:2:1

C. 9:3:3:1

D. 1 : 2 : 2 : 4 : 1 : 2 : 1 : 2 : 1

**Answer: A**



**Watch Video Solution**

**95.** In a Mendelian dihybrid cross kinds of recombinant phenotypes formed in  $F_2$  generation

A. 2

B. 4

C. 6

D. 10

**Answer: D**



**Watch Video Solution**

**96.** In a typical dihybrid cross the number of recombinants formed in the  $F_2$  generation is

A.  $2/16$

B.  $10/16$

C. 9 / 16

D. 6 / 16

**Answer: C**



**Watch Video Solution**

**97.** In what ratio the parental phenotypes will appear in  $F_2$  generation of dihybrid cross

A. Double dominant phenotype

B. Single dominant phenotype

C. Double recessive phenotype

D. Single recessive phenotype

**Answer: B**



**Watch Video Solution**

**98.** The second law of Mendel is

A. The purity of gametes

B. The segregation of unit factors

C. Independent assortment of alleles

D. The random fusion of gametes

**Answer: D**



**Watch Video Solution**

**99.** If a double stranded DNA has 20 percent of cytosine, calculate the percent of thymine in the DNA.



**Watch Video Solution**



**100.** In a cross between a pure tall pea plant with green pod and a pure short plant with yellow pod, how many short plants out of 16 are expected in  $F_2$  generation?

- A. One
- B. Four
- C. Nine
- D. Three

**Answer: B**



Watch Video Solution

101. In  $F_2$  progeny of dihybrid cross, the expected genotypic proportions of individuals homozygous for both dominant character is

A.  $3/16$

B.  $9/16$

C.  $12/16$

D.  $1/16$

**Answer: D**





**102.** When true breeding yellow wrinkled seeded pea plant is crossed to true breeding green round seeded pea plant the progeny will be

- A. All yellow round
- B. All yellow wrinkled
- C. All green round
- D. All green wrinkled

**Answer: A**



**Watch Video Solution**

**103.** When true breeding pea plant with yellow wrinkled seeds is crossed to true breeding pea plant with green round seeds the genotype of progeny will be

A.  $yyrr$

B.  $yyRR$

C.  $YyRr$

D. yyRR

**Answer: C**



**Watch Video Solution**

**104.** In a typical dihybrid cross the fraction of  $F_2$  similar to parents phenotypically is

A. 2/16

B. 9/16

C. 10/16

D. 6/16

**Answer: C**



**Watch Video Solution**

**105.** In a typical dihybrid cross the fraction of  $F_2$  similar to the parental phenotype that is suppressed in  $F_1$  is

A. 1 / 16

B. 9 / 16

C. 6 / 16

D. 10 / 16

**Answer: A**



**Watch Video Solution**

**106.** The percentage of a recombinants in the  $F_2$  of a typical dihybrid cross is

A. 50

B. 25

C. 37.5

D. 62.5

**Answer: C**



**Watch Video Solution**

**107.** What are *amoeboid* protozoans?

A. 8 / 16

B. 10 / 16

C. 9 / 16



D. 6/16

**Answer: A**



**Watch Video Solution**

**108.** The fraction of double homozygous recombinants in the  $F_2$  of a Mendelian dihybrid cross is

A. 6/16

B. 2/16

C. 4/16

D. 3/16

**Answer: B**



**Watch Video Solution**

**109.** The fraction of single homozygous individuals in the  $F_2$  of a typical dihybrid cross is

A. 6/16

B. 2/16

C. 4/16

D. 3/16

**Answer: C**



**Watch Video Solution**

**110.** The fraction of double homozygous recombinants in the  $F_2$  of a Mendelian dihybrid cross is

A.  $9/16$

B.  $4/16$

C.  $2/16$

D.  $1/16$

**Answer: D**



**Watch Video Solution**

**111.** The fraction of single heterozygous dominant individuals in the  $F_2$  of a Mendelian dihybrid cross

A. 4/16

B. 1/16

C. 8/16

D. 9/16

**Answer: A**



**Watch Video Solution**

**112.** The ratio of various genotypes of a double dominant phenotype of  $F_2$  dihybrid cross

A. 1 : 2 : 1

B. 1 : 2

C. 1 : 2 : 1 : 2

D. 1 : 2 : 2 : 4

**Answer: D**



**Watch Video Solution**

**113.** The ratio of various genotypes of a double dominant phenotype of  $F_2$  dihybrid cross

A. 1 : 2 : 1

B. 1 : 2

C. 1 : 2 : 1 : 2

D. 1 : 2 : 2 : 4

**Answer: C**



**Watch Video Solution**

**114.** Number of genotype found in  $F_2$  progeny of a dihybrid cross is

A. 0

B.  $4/16$

C.  $1/16$

D.  $8/16$

**Answer: D**



**Watch Video Solution**

**115.** The ratio of the number of kinds of double homozygous to double heterozygous to single



homozygous genotypes of  $F_2$  generation of a Mendelian dihybrid cross is

A. 1 : 4 : 4

B. 4 : 4 : 1

C. 4 : 1 : 4

D. 4 : 2 : 3

**Answer: C**



**Watch Video Solution**

**116.** When a green full pod producing pea plant is crossed to a yellow constricted pod producing pea plant in the progeny green fullpod and green constricted pod producing pea plants only are formed in 1:1 ratio. The genotype of tested individual is

A. GGFF

B. GfFf

C. GGff

D. GgFf

**Answer: C**



**Watch Video Solution**

**117.** Bateson and Punnett discovered the phenomenon which is an exception of Mendel's

- A. Unit factors in pairs
- B. Dominance and recessive
- C. Segregation of unit factors
- D. Independent assortment.

**Answer: D**



**Watch Video Solution**

**118.** When in a typical dihybrid cross in  $F_2$  generation one monohybrid genotype is present in 12 individual the total number of  $F_2$  offspring is

A. 48

B. 24

C. 192

D. 96

**Answer: D**



**Watch Video Solution**

**119.** In a Mendelian dihybrid cross if the individuals with all the four kinds of alleles are 30 in  $F_2$  generation, find out the total number of  $F_2$  individuals

A. 120

B. 300

C. 240

D. 1600

**Answer: A**



**Watch Video Solution**

**120.** In a Mendelian dihybrid cross the number of phenotypic recombinants is 36 in  $F_2$  generation. The number of organisms with the

genotype that itself accounts for 1/4th of  $F_2$   
generation

A. 48

B. 24

C. 18

D. 12

**Answer: B**



**Watch Video Solution**

**121.** If four different types of gametes are produced in equal proportion from the dihybrid individual the inheritance is

A. Independent assortment

B. Linkage

C. Incomplete linkage

D. Complete linkage

**Answer: A**



**Watch Video Solution**



122. What is true regarding law of independent assortment?

A. Applicable to all the dominant alleles

B. Applicable to all genes on the same chromosome

C. Not applicable to genes present on the same chromosome

D. Applicable to all the recessive alleles

**Answer: C**



Watch Video Solution

**123.** The ratio in a dihybrid test cross between two individuals is given by :-

A. 9 : 3 : 3 : 1

B. 1 : 1

C. 1 : 1 : 1 : 1

D. 1 : 2 : 1 : 2

**Answer: C**



Watch Video Solution

**124.** A cross between a plant heterozygous for two factors and a plant recessive for both the factors, gives a phenotypic ratio of

A. 9 : 1 : 1 : 7

B. 9 : 3 : 3 : 1

C. 1 : 1 : 1 : 1

D. 1 : 7 : 7 : 1

**Answer: C**



**125.** If yellow round, yellow wrinkled, green round and green wrinkled seeded progeny are obtained in equal proportions, the cross might be

- A. Monohybrid back cross
- B. Dihybrid back cross
- C. Monohybrid test cross
- D. Dihybrid test cross

**Answer: D**



**Watch Video Solution**

**126.** What is the phenotypic ratio of the progeny obtained in a cross between a female plant with  $GgIi$  and a male plant with  $ggii$ ?

A. 9 : 3 : 3 : 1

B. 1 : 1 : 1 : 1

C. 1 : 2 : 2 : 1

D. 3 : 9 : 3 : 1

**Answer: B**



**Watch Video Solution**

**127.** What is the fraction of individuals with double homozygous condition in a mendelian dihybrid across?

A.  $1/16$

B.  $2/16$

C.  $6/16$

D.  $9/16$

**Answer: C**



**Watch Video Solution**

**128.** If vestigial winged female *Drosophila*, heterozygous for long wing, the possible phenotypic ratio is

A. 9:3:3:1

B. 1:2:2:4

C. 1:1:1:1

D. 1:2:1:2

**Answer: C**



**Watch Video Solution**

**129.** The number of a particular outcome of an event is divided by total number possible outcomes of that event, refers to

- A. Punnett square
- B. Chi square
- C. Probability
- D. Law of inheritance



**Answer: C**



**Watch Video Solution**

**130.** Sutton united the knowledge of chromosomal segregation with Mendelian principles and called it the.....

- A. Sutton
- B. Morgan
- C. Corrents
- D. Boveri

**Answer: A**



**Watch Video Solution**

**131.** Chromosomal theory of inheritance was proposed by

A. Morgan et al

B. Hugo de Vries

C. Both Sutton (1902) and Boveri (1902)

D. Waldeyer

**Answer: C**



**Watch Video Solution**

**132.** Behaviour of Chromosomes was parallel to the behaviour of genes explained by.....

A. de Vries, Correns and Tschermak

B. Sutton and Boveri

C. Punnett and Bateson

D. Morgan and Bridges

**Answer: B**



**Watch Video Solution**

**133.** Identify the scientists from the hints given below : (i) They used chromosome movement to explain Medel's laws (ii) They noted that behaviour of chromosomes was parallel to the behaviour of genes

A. Punet and bateson

B. Morgan and Bridges

C. Sutton and Boveri

D. Correns and de Vries

**Answer: C**



**Watch Video Solution**

**134.** The term "linkage" was coined by

A. Sutton and Bover

B. Morgan

C. Punnet and Bateson

D. Correns

**Answer: B**



**Watch Video Solution**

**135.** Which of the following is suitable for experiment on linkage ?

A.  $aaBB \times aaBB$

B.  $AABB \times aabb$

C.  $AaBb \times AaBb$

D. AABb × AaBB

**Answer: B**



**Watch Video Solution**

**136.** Parallelism between factors and chromosome led to the formation of

A. Cell theory

B. Chromosomal theory of inheritance

C. Pangenesis theory

## D. Pre formation theory

**Answer: B**



**Watch Video Solution**

**137.** Dihybrid test cross ratio with 82% parental type and 18% recombinants type shows that genes have

A. Incomplete linkage

B. Complete linkage



C. Independent assortment

D. Double crossing over

**Answer: A**



**Watch Video Solution**

**138.** A dihybrid test cross ratio for two linked genes in a hybrid is

A. 1 : 1 : 1 : 1

B. 1 : 1

C. 1:7:7:1

D. 7:1:1:7

**Answer: B**



**Watch Video Solution**

**139.** Select the odd one

A. It was proposed by Sutton and Boveri

B. The behavior of chromosomes is parallel  
to the behaviour or genes

C. Chromosomes and genes occur in pairs

in diploid and haploid cells, respectively

D. The paired condition of both

chromosomes as well as Mendelian

factors, is resorted during fertilization

**Answer: C**



**Watch Video Solution**

**140.** To describe the generation of non parental gene combinations Morgan coined the term

- A. Crossing over
- B. Recombination
- C. Linkage
- D. Sex linkage

**Answer: B**



**Watch Video Solution**

**141.** Crossing over in diploid organisms is responsible for

- A. Deominanee of genes
- B. Linkage between genes
- C. Recombination of linkage genes
- D. Segregation of alleles.

**Answer: C**



**Watch Video Solution**

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

A. Non -disjunction

B. crossing over

C. Hybridization

D. Not be separated at any stage

**Answer: B**



**Watch Video Solution**

**143.** Linkage in *Drosophila* was reported by

A. Mendel

B. Correns

C. Morgan

D. None of these

**Answer: C**



**Watch Video Solution**

**144.** The frequency of recombination between gene pairs on the same chromosome as a measure of the distance between genes was explained by

A. Bridges

B. Morgan

C. Sturteuant

D. All these

**Answer: C**



**Watch Video Solution**



**145.** The frequency of crossing over would be higher if

A. Two genes are located closely

B. Two genes are far apart on a chromosome

C. Two genes are not located in the same chromosome

D. None of the above

**Answer: B**



**Watch Video Solution**

**146.** A phenomenon which results in alteration of DNA sequences and consequently results in changes in the genotype and the phenotype of an organism is

- A. Independent assortment
- B. Random gametic fusion
- C. Mutation

D. Crossing over

**Answer: B**



**Watch Video Solution**

**147.** One centimorgan is equal to recombination frequency of

A. 1

B. 0.1

C. 10

D. 0.01

**Answer: D**



**Watch Video Solution**

**148.** Which statement is incorrect about linkage-

A. It helps in maintaining the valuable traits of new varieties.

B. It helps in forming new recombinants

C. Knowledge of linkage helps the breeder to combine all desirable traits in a single variety

D. It helps in locating genes on chromosome.

**Answer: B**



**Watch Video Solution**

**149.** In sickle cell anaemia, an amino acid substitution is

- A. valine by glutamine in  $\alpha$ - chain
- B. Valine by glutamine in  $\beta$ - chain
- C. Glutamine by valine in  $\alpha$ - chain
- D. Glutamate by valine in  $\beta$ - chain

**Answer: D**



**Watch Video Solution**

**150.** The linked characters would always inherit together till they are

- A. Delinked due to segregation
- B. masked by dominance
- C. Mutated
- D. Separated due to crossing over

**Answer: D**



**Watch Video Solution**

**151.** Variation in DNA is due to

- A. Mutation
- B. Recombination
- C. Both 1 and 2
- D. Neither 1 nor 2

**Answer: C**



**Watch Video Solution**



**152. Mutation is due to**

- A. 1) Loss of a segment of DNA
- B. 2) Gain of a segment of DNA
- C. 3) Change in a single base pair of DNA
- D. 4) All of these

**Answer: D**



**Watch Video Solution**

1. Chromosomal disorders are caused due to

- A. Absence of one or more chromosomes
- B. Excess of one or more chromosomes
- C. Abnormal arrangement of chromosomes
- D. Any of these

**Answer: D**



**Watch Video Solution**

2. Failure of segregation of chromatids during cell division cycle results in

- A. Gain of chromosome (s)
- B. Loss of chromosome (s)
- C. Aberration of chromosome (s)
- D. Both 1 and 2

**Answer: D**



**Watch Video Solution**

3. Gain or loss of chromosome (s) is called

A. Euploidy

B. Polyploidy

C. Aneuploidy

D. Haploidy

**Answer: C**



**Watch Video Solution**

4. Match the following and select the correct option

**List - I**

- A) Mendel
- B) Bateson and Punnet
- C) T.H. Morgan
- D) Stevens and Wilson

**List - II**

- I) Sweet pea
- II) Grasshopper
- III) Garden pea
- IV) *Protenor*
- V) *Drosophila*

The correct match is

- A. 

<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>
<i>I</i>	<i>III</i>	<i>V</i>	<i>IV</i>
- B. 

<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>
<i>III</i>	<i>I</i>	<i>V</i>	<i>II</i>
- C. 

<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>
<i>III</i>	<i>I</i>	<i>V</i>	<i>IV</i>
- D. 

<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>
<i>III</i>	<i>I</i>	<i>IV</i>	<i>II</i>

**Answer: C**



**Watch Video Solution**

5. In one series of insects males have 17 chromosomes while female have 18 chromosomes. The type of sex determination in that species is

A. ZO type

B. ZW type

C. XY type

D. XO type

**Answer: D**



**Watch Video Solution**

**6.** Which of the following is true for sickle cell anaemia regarding the change in shape of RBC?

A. Occurs in polycythemia

B. more oxygen carrying capacity

C. RBC has low oxygen tension

D. RBC has high oxygen tension

**Answer: C**



**Watch Video Solution**

7. An aneuploidy disorder of human is

A. Turner's syndrome

B. Thalassemia

C. Down's syndrome

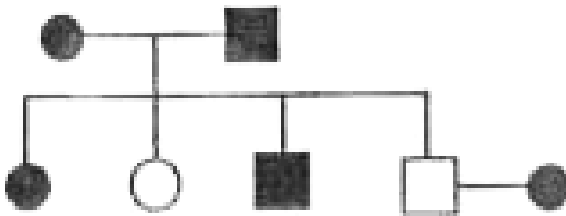


## D. Colour blindness

Answer: A

 Watch Video Solution

8. Find out the genotype of mother and father in the given pedigree chart.



A. Mother      Father  
AA      AA

- B. Mother      Father  
Aa      Aa
- C. Mother      Father  
AA      Aa
- D. Mother      Father  
Aa      aa

**Answer: B**



**Watch Video Solution**

**9. In XO type of sex determination**

A. Males have paired autosomes and  
allosomes

B. Males have paired autosomes but unpaired allosome

C. Females have paired autosomes but unpaired allosome

D. Females are without allosomes

**Answer: B**



**Watch Video Solution**

**10. a.** Trisomy of 21st chromosome

b. Palm crease

c. Partially open mouth

d. Retarded psychomotor development

Above information is related with

A. Klinefelter's syndrome

B. Turner's syndrome

C. Edward's syndrome

D. Down's syndrome

**Answer: D**



Watch Video Solution

11. Which of the following genotype is present in Queen Victoria as per her family pedigree chart?

A.  $X^h Y$

B.  $X^h X^h$

C.  $X^H X^h$


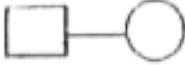


D.  $X^h X^O$

**Answer: B**



Watch Video Solution

12. Match the column I with column II and find the correct option

	Column I	Column II
A)		1) Mating
B)		2) Sex unspecified
C)		3) Consanguinous mating
D)		4) Affected individual

A. 

<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>
2	1	4	3

B. 

<i>A</i>	<i>B</i>	<i>C</i>	<i>D</i>
4	3	2	1

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

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

**Answer: C**



**Watch Video Solution**

**13.** The X-body was first identified by

A. Mendel-1856

B. Khoraa-1922

C. Griffith 1928

D. Henking 1891

**Answer: D**



**Watch Video Solution**

**14.** In case of phenylketonuria mental retardation occurs due to

A. Elimination of tyrosine from blood

B. Accumulation of tyrosine in blood



C. Accumulation of phenylpyruvic acid in  
blood

D. Elimination of phenylalanine from blood

**Answer: C**



**Watch Video Solution**

**15.** Turner's syndrome is characterized by

A. Absence of ovaries

B. Absence of autosomal set

C. Absence of allosome

D. Presence of trisomy

**Answer: C**



**Watch Video Solution**

**16.** Which of the following is correct for HbS peptide molecule?

A. Val-His-Leu-Pro-Thr-Val-Glu

B. Val-His-Leu-Thr-Pro-Val-Glu

C. Val-His-Thr-Leu-Pro-Glu-Val

D. Val-His-Leu-Thr-Pro-Glu-Glu

**Answer: B**



**Watch Video Solution**

**17.** Which of the following disorder can occur with the same frequency in both sexes of humans?

A. Turner's syndrome

B. Haemophilia

C. Klinefelter's syndrome

D. Phenylketonuria

**Answer: D**



**Watch Video Solution**

**18.** Given below are some organisms.

I. Fowl II. Humans III. Grasshopper

Following alphabets related to the above animals.

Male homogametic-A

Female heterogametic-B

Male heterogametic -C

Female homogametic -D

Which of the following option correctly describes the above animals in terms of sex determination?

A.

(*I II III*), (*A, B C, D C, D*)

B.

(*I II III*), (*C, D A, B C, D*)

C.

$(I \quad II \quad III), (A, D \quad C, D \quad A, D)$

D.

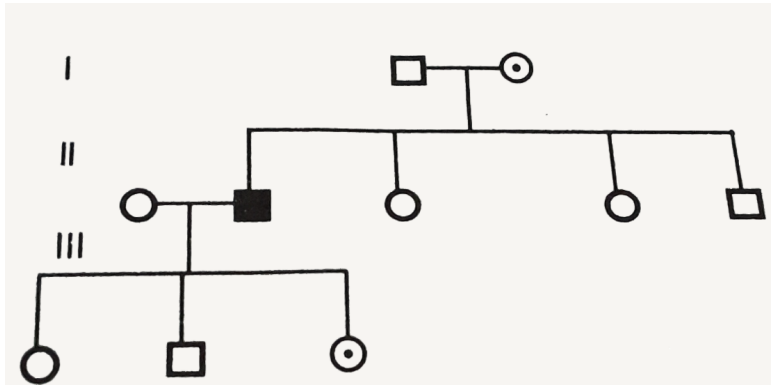
$(I \quad II \quad III), (B, C \quad C, D \quad A, B)$

**Answer: A**



**Watch Video Solution**

19. Predict from the following chart



- A. Sex linked recessive character
- B. Autosomal recessive character
- C. May be X-linked or autosomal
- D. Holandric inheritance

**Answer: B**



**20.** How many of the following diseases can be studied with the help of pedigree chart?

Turner's syndrome, Phenylketonuria, Down's syndrome, Sickel-cell anaemia, Klinefleter's syndrome, Haemophilia, Cystic fibrosis, Myotonic dystrophy.

A. All

B. Six

C. Five



D. Four

**Answer: C**



**Watch Video Solution**

21. A colourblind child have both normal parents, the child is

A. Male

B. Female

C. May be male or female

D. Cannot be predicted

**Answer: A**



**Watch Video Solution**

**22.** Choose the incorrect statement related to Barr body

A. Found attached to nuclear envelope in buccal mucosa cells

B. Barr body is the heterochromatinised X-chromosome

C. Occurs as drumstick body in the neutrophils

D. Of the two chromosomes in a female, only maternal chromosome becomes the Barr body

**Answer: D**



**Watch Video Solution**

**23.** Which of the following is not applicable to *Drosophila*

A. Genes for maleness are located on autosomes

B. Genes for femaleness are located on X-chromosome

C. SRY gene codes for testies determining factor

D. Y-chromosome is essential for male fertility

**Answer: C**



**Watch Video Solution**

**24.** In honey bees, drones contribute to the development of

- A. Only fertile females
- B. Both males and females
- C. Only haploid bees
- D. only diploid females

**Answer: D**



**Watch Video Solution**

**25.** Genes limited to only one sex are

- A. Genes of sex limited traits
- B. X-linked genes
- C. Sex influenced genes
- D. Holandric genes

**Answer: D**



Watch Video Solution

**26.** Read the statements about honey bees

I. Daughters of a Queen bee share  $\frac{3}{4}$ th of their genes

II. Gametogenesis occurs by mitosis in a Queen bee

A. Both I,II are correct

B. Only I is correct

C. Both I and II are incorrect

D. Only II is correct.

**Answer: B**



**Watch Video Solution**

27. In *Drosophila*, sex is determined by the ratio of X-chromosomes, to the number of

A. Autosomes in a cell

B. Chromosomes of a haploid set

C. Haploid sets of autosomes



D. Autosomes of a haploid set

**Answer: C**



**Watch Video Solution**

**28.** Honey bees development by arrhenotoky are

A. Fertile haploid bees

B. Sterile haploid bees

C. Fertile diploid bees

D. Sterile diploid bees

**Answer: A**



**Watch Video Solution**

**29.** A normal visioned girl has a normal visioned brother and a colour blind sister. Their parents are

**A. Colour blind father, carrier mother**

B. Normal visioned father, Colour blind mother

C. Carrier mother, normal visioned father

D. Colour blind father, colour blind mother

**Answer: A**



**Watch Video Solution**

**30.** X/A ratio for a drosophila with large size, morphological abnormalities and rudimentary bisexual gonads is

A. less than 0.5

B. Between 0.5 and 1.0

C. More than 1.0

D. Zero

**Answer: B**



**Watch Video Solution**

**31. AX sperm are formed due to**

A. Primary non-disjunction of autosomes

B. Secondary non-disjunction of allosomes

C. Secondary non-disjunction of Autosomes

D. Secondary disjunction of allosomes

**Answer: B**



**Watch Video Solution**

**32.** Which of the following is not applicable to sickle cell anaemia?

A. Exhibits co dominance in heterozygous condition

B. Example for single gene mutation in cistron of haemoglobin

C. Emplifies pleiotropy as it affects different functions of body

D. Sickle cell anaemia is caused by autosomal dominant mutation in gene of hemoglobin

**Answer: D**



Watch Video Solution

**33.** Sex of the offspring depends on the fertilizing ovum in

- A. Fruit fly, Butter fly
- B. Grass hoppers, cockroaches
- C. Fumea, birds
- D. Squash bug, Drosophila

**Answer: C**



34. Select an incorrect statement

- A. They are located on homologous segments of X and Y chromosomes
- B. They are also called as completely sex linked genes
- C. They occur in both males and females
- D. They occur either in homozygous or heterozygous condition,.



**Answer: B**



**Watch Video Solution**

**35.** The codon of m-RNA which determines aminoacid at the 6th position in polypeptide chain of normal haemoglobin is

A. GAG

B. GUG

C. CAC

D. GTG

**Answer: A**



**Watch Video Solution**

**36.** Identify the incorrect statement about alpha thalassemia

A. Excessive beta chains form unstable tetramers

B. It is an autosome linked recessive gene disorder

C. Production of alpha chain of

haemoglobin is controlled by two closely

linked genes on chromosome 16

D. Alpha thalassemia is a qualitative

problem in the synthesis of globin

molecules.

**Answer: D**



**Watch Video Solution**

**37.** Which of the following is not a character of Turner's syndrome?

- A. Webbed neck
- B. Sterility
- C. Gynaecomastia
- D. Gonadal dysgenesis

**Answer: C**



**Watch Video Solution**

**38.** Select the incorrect statement about Down's syndrome.

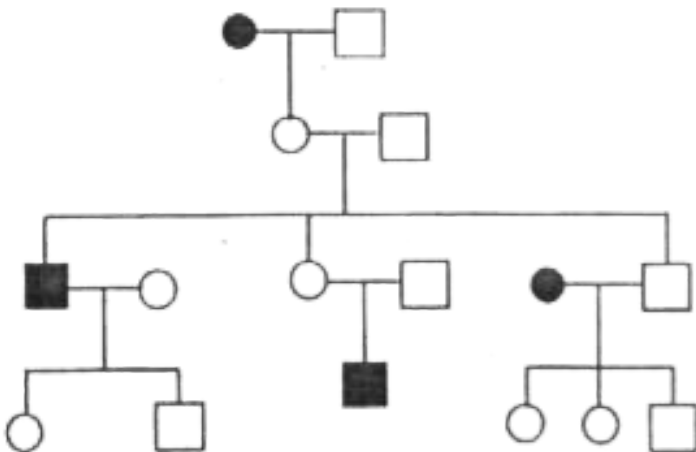
- A. It is caused by non-disjunction of autosomes during oogenesis
- B. Late pregnancy in woman might be the cause of Down's syndrome
- C. Affected individuals exhibit 21st trisomy condition
- D. A woman with Down's syndrome always give birth to children with Down's

syndrome

Answer: D

 Watch Video Solution

39. Identify the trait inherited in the given pedigree from the following options



A. Autosomal dominant

B. Autosomal recessive character

C. X-linked recessive

D. X-linked dominant

**Answer: B**



**Watch Video Solution**

**40.** What are *flagellated* protozoans?

A. Aa,Aa,Aa

B. AA,Aa,AA

C. AA,Aa,Aa

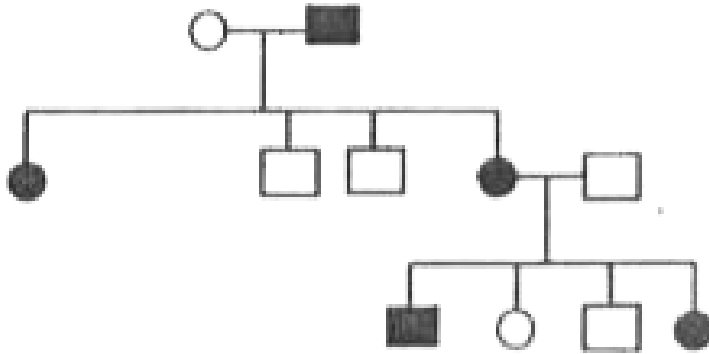
D. AA,AA,Aa

**Answer: A**



**Watch Video Solution**





41.

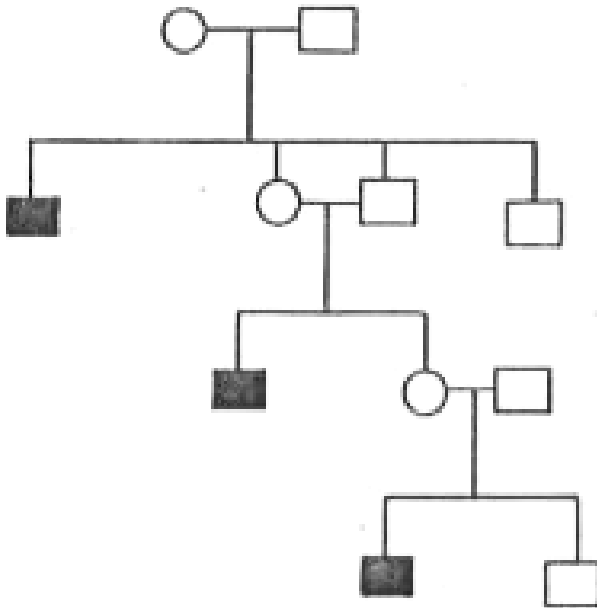
In humans the above pedigree indicates the inheritance of

- A. Incontinentia pigmenti
- B. Green color blindness
- C. Haemophilia
- D. Webbing of toes

**Answer: A**



**Watch Video Solution**



**42.**

The given pedigree shows inheritance of

A. Myotonic dystrophy

B. Porcupine men

C. Duchenne muscular dystrophy

D. Hypertrichosis

**Answer: C**



**Watch Video Solution**

**43.** Incorrect match from the following about the disease causing genes and their location on chromosomes is

A. Cystic fibrosis Chromosome 7

B. Cooley's anaemia Chromosome 11

C. Haemophilia-C X- chromosome

D. Sickle cell anaemia Chromosome 11

**Answer: C**



**Watch Video Solution**

**44.** Which of the following disorders are caused by the condition monosomy?

A. Down's syndrome

B. Patau's syndrome

C. Turner's syndrome

D. Edward's syndrome

**Answer: C**



**Watch Video Solution**

**Exercise 11**

1. Sum total of genes with all these alleles at any time in a unit of evolution is called.

A. Genotype

B. Genome

C. Gene pool

D. Gene library

**Answer: C**



**Watch Video Solution**

2. Employment of hereditary principles in the improvement of human race is

A. Disgenics

B. Eugenics

C. Duphenics

D. Eutheics

**Answer: B**



**Watch Video Solution**

### 3. Father of modern Genetics

A. T.H. Morgan

B. G. Mendel

C. Karl Correns

D. Reginold C.Punnet

**Answer: A**



**Watch Video Solution**



4. Father of human genetics is

A. Cuvier

B. Bateson

C. Mendel

D. Garrod

**Answer: D**



**Watch Video Solution**

5. How is the arrangement of Mendel's selected seven characters on four chromosomes :-

A. 1,4,5,7

B. 1,4,5,6

C. 4,5,6,7

D. 2,3,4,7

**Answer: A**



**Watch Video Solution**

6. Who coined the term 'allele'?

A. Saunders

B. Bateson

C. Johansen

D. Mendel

**Answer: B**



**Watch Video Solution**

7. Who amongst the following raised the status of Mendel's generalizations to law?

A. Correns

B. De Vries

C. Tschermak

D. Goss

**Answer: A**



**Watch Video Solution**

8. The term gene for Mendellian factor was coined by

A. Sutton and Boveri

B. Morga

C. Bateson

D. Johannsen

**Answer: D**



**Watch Video Solution**

9. Which one of the following characters studied by Mendel in garden pea was found to be dominant?

- A. Green Seed colour
- B. Terminal flower position
- C. Green pod colour
- D. Wrinkle seed

**Answer: C**



**Watch Video Solution**

10. A sinistral shelled female snail having  $Dd$  gene complement breeds with dextral sheeled male snail havig  $dd$  gene component what tuye of shell be present in the progeny?

A. All dextral

B. All sinistral

C. 50% dextral, 50% sinistral

D. None

**Answer: A**



**Watch Video Solution**

11. When red flowered plants are crossed with white flowered plants the  $F_2$  generation gives a ration of 3:1. What do you conclude?

- A. That there are lethal genes
- B. That three is independent assortment
- C. That white colour is dominant
- D. That red colour is dominant.

**Answer: D**





Watch Video Solution

12. If only one copy of a gene is present that condition is

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

**Answer: A**



Watch Video Solution

**13. Reciprocal cross is**

A. Intraspecific hybridization

B. Back cross

C. Pollen grains from one variety deposited on the stigma of the constrating variety and vice versa, in hybridization experiments

D. Test cross

**Answer: C**



**Watch Video Solution**

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

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

**Answer: B**



**Watch Video Solution**

**15.** Select the odd one out w.r.t non-allelic gene interactions

- (a) Epistasis
- (b) Duplicate genes
- (c) Incomplete dominance
- (d) Complementary genes

**A. Epistasis**

B. Duplicate genes

C. Incomplete dominance

D. Complementary genes

**Answer: C**



**Watch Video Solution**

**16.** Person having genotype  $I^A I^B$  would show the blood group as AB. Thus is because of

A. Pleiotropy

B. Co-dominance

C. Segregation

D. Incomplete dominance

**Answer: B**



**Watch Video Solution**

17. A 15 : 1  $F_2$  ratio of a cross between a wheat variety with red kernels (homozygous for two dominant genes) and another with white kernels shows

A. Polygenic inheritance

B. that the two genes are complementary

C. single factor inheritance

D. that it is a test cross

**Answer: A**



**Watch Video Solution**

**18. A,B and O blood groups were discovered by**

A. Landsteiner

B. Weiner

C. Levine

D. Bernstein

**Answer: A**



**Watch Video Solution**

**19.** The blood group in which A and B antigens are absent

A. O



B. A

C. B

D. AB

**Answer: A**



**Watch Video Solution**

**20.** Agglutination of erythrocytes of donor will occur if

A. O is given to AB

B. O is given to A

C. O is given to B

D. B is given O

**Answer: D**



**Watch Video Solution**

**21.** The blood groups A, B, AB and O are classified on the basis of the type of antigen present on

A. RBC

B. WBC

C. Plasma

D. Thrombocytes

**Answer: A**



**Watch Video Solution**

**22.** The blood groups will have their respective anti bodies in the

A. RBC

B. WBC

C. Plasma

D. Thrombocytes

**Answer: C**



**Watch Video Solution**

**23.** If a clump is formed with anti A and anti B antisera the blood group is

A. AB

B. A or B

C. O

D. A,B and AB

**Answer: A**



**Watch Video Solution**

**24.** The blood group which forms clump with only "anti B" antiserum

A. AB

B. B

C. AB and B

D. O

**Answer: B**



**Watch Video Solution**

**25.** A person without A and B antigens can give blood to

A. Only O

B. Only A and B

C. Only AB

D. A,B,AB and O

**Answer: D**



**Watch Video Solution**

**26.** If a colour- blind man marries a woman who is homozygous for normal colour vision,

the probability of their son being colour-blind  
is

A. 4

B. 9

C. 8

D. 6

**Answer: D**



**Watch Video Solution**



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

- A. The alleles of two genes are interacting with each other
- B. It is a multiple allelism
- C. It is a case of multiple allelims
- D. The alleles of the two gees are segregatiing independently.

**Answer: A**



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

- A. Dominance
- B. Multiple alleles
- C. Independent Assortment
- D. Incomplete dominance

**Answer: C**



**Watch Video Solution**

**29.** A gene which hides the action of another gene is termed as

- (a) Co-dominant gene
- (b) Epistatic gene
- (c) Hypostatic gene
- (d) Lethal gene

**A. Co-dominant gene**

B. Epistatic gene

C. Hypostatic gene

D. Lethal gene

**Answer: B**



**Watch Video Solution**

**30.** The genes are present only in males

A. Sexlinked genes

B. XY linked genes

C. Holandric genes

D. Incompletely sex linked genes

**Answer: C**



**Watch Video Solution**

**31.** The genes located only on the non homologous region of Y chromosome are called

A. XY-linked genes

B. Sex linked genes

C. Holandric genes

D. All these

**Answer: C**



**Watch Video Solution**

**32. Complete linkage is found in**

A. Male drosophila

B. Female silkworm

C. Both 1 and 2

D. *Aspergillus flavus*

**Answer: C**



**Watch Video Solution**

**33.** The gene theory was presented by

A. 1) Wilson

B. 2) Morgan

C. 3) Mendel

D. 4) Bateson

**Answer: B**



**Watch Video Solution**

**34. The unit of linkage map is**

A. Map unit

B. Centimeter

C. Centimorgan

D. 1 and 3



**Answer: D**



**Watch Video Solution**

**35.** Neurospora (fungus) is considered suitable for genetic studies because it

A. has a long life cycle and can be easily cultured

B. can be cultured in defined media and has very short lifecycle

C. has diploid vegetative phase

D. none above

**Answer: B**



**Watch Video Solution**

**36.** All genes located on the same chromosome.

A. Form different groups depending upon their relative distance

B. Form one linkage group

C. will not form any linkage groups

D. Form interactive groups that affect the  
phenotype

**Answer: B**



**Watch Video Solution**

**37. Linkage in plants was first shown in**

A. Zea mays

B. *Lathyrus odoratus*

C. *Oenothera lamarckiana*

D. *Pisum sativum*

**Answer: B**



**Watch Video Solution**

**38.** Morgan discovered sex linked inheritance first in

A. Human beings

B. Sweet pea

C. *Drosophila melanogaster*

D. Guinea pigs

**Answer: C**



**Watch Video Solution**

**39.** Criss cross inheritance is shown by

A. Y-linked gene

B. X,Y- linked gene

C. X-linked recessive gene

D. Autosomal gene

**Answer: C**



**Watch Video Solution**

**40.** Y-linked genes are also called

A. Pseudoautosomal genes

B. Holandric genes

C. Incompletely sex linked genes

D. Sex linked genes

**Answer: B**



**Watch Video Solution**

**41.** Human males are hemizygous for

A. Y-linked gene

B. X-linked genes

C. X,Y-linked genes

D. X-linked and -linked genes

**Answer: D**



**Watch Video Solution**

**42.** Males always inherit these traits from the female parents

- A. Y-linked
- B. X-linked
- C. X and Y - linked
- D. XY-linked



**Answer: B**



**Watch Video Solution**

**43.** Lack of independent assortment of two genes A and B in fruit fly *Drosophila* is due to

- A. Repulsion
- B. Recombination
- C. Linkage
- D. Crossing over

**Answer: C**



**Watch Video Solution**

**44.** An individual homozygous for genes *cd* is crossed with wild type and  $F_1$  is crossed back with the double recessive. The appearance of the offspring is as follows:

+	+	—	903
<i>cd</i>		—	897
+	<i>d</i>	—	98
<i>c</i>	+	—	102

The distance between genes *c* and *d* is

A. 20 map units

B. 9.8 map units

C. 10.2 map units

D. 10 map units

**Answer: D**



**Watch Video Solution**

**45.** A test cross of  $F_1$  flies  $+a/+b$  produced the followings,

$++/ab(R)$  9

$ab/ab(R)$  9

+b/ab(R) 41

a+/ab(R)41

This cross represents

- A. Trans configuration
- B. Cis configuration
- C. Complete linkage
- D. No crossing over

**Answer: A**



**Watch Video Solution**

**46.** Assume that genes *a* and *b* are linked and show 40 % recombination. If ++/++ individual is crossed with *ab/ab*, then types and proportions of gametes in  $F_1$  will be

A. ++ 20 % : *ab* 20 % : + 20 % : *a* + 40 %

B. ++ 50 % : *ab* 50 %

C.

++ 25 % : *ab* 25 % : + *b* 25 % : *a* + 25 %

D.

++ 30 % : *ab* 30 % : + *b* 20 % : *a* + 20 %

**Answer: D**



**Watch Video Solution**

**47.** In a linear chromosome map, distances between 4 loci is as follows, a-b 10%, a-d 3%, b-c 4% and a-c 6%. The cross over frequency between c and d is

A. 0.03

B. 0.09

C. Either 3% or 9%

D. 4% to 12%

**Answer: C**



**Watch Video Solution**

**48.** What will be the phenotypic ratio in a situation of complementary gene interaction?

A. 9: 7

B. 15: 1

C. 13: 3

D. 9: 3: 4

**Answer: A**



**Watch Video Solution**

**49.** If gene frequency between genes a and c 2%, b and c 13%, b and d 4%, a and b 15%, c and d 19%. What will be the sequence of these genes in a chromosome?

A. a,b,c,d



B. a,c,b,d

C. d,b,a,c

D. a,d,b,c

**Answer: B**



**Watch Video Solution**

**50.** The crossing over between homologous chromosomes never exceeds beyond

A. 0.5

B. 0.75

C. 1

D. 0.85

**Answer: A**



**Watch Video Solution**

**51.** Cis trans expression of genes is an example of  
of

A. mutation

B. intergenetic crossing over

C. intergenetic crossing over

D. cytoplasmic inheritance

**Answer: C**



**Watch Video Solution**

**52.** In a genetic cross having recessive epistasis,  $F_2$  phenotypic ratio would be

A. 9 : 3 : 4

B. 9: 6: 1

C. 12: 3: 4

D. 13: 3

**Answer: A**



**Watch Video Solution**

**53.** Independent genes that copy other genes so as to produce a similar effect are called

A. lethal genes

B. Duplicate genes

C. Complementary genes

D. None of the above

**Answer: B**



**Watch Video Solution**

**54.** Chromosome map is useful for

A. finding exact location of gene on  
chromosome

- B. knowing combination of various genes  
in a linkage group of chromosomes
- C. predicting results of dihybrid and  
trihybrid crosses
- D. all above

**Answer: D**



**Watch Video Solution**

55. The percentage of recombination involving the seed shape and seed colour in a plant is 10%. What is the distance (mu) between the genes on a chromosome controlling these characters?

A. 5

B. 10

C. 20

D. 15

**Answer: B**



Watch Video Solution

56. Genetic map is one that

- A. establishes sites of the genes on a chromosome
- B. establishes the various stages in gene evolution
- C. shows the stages during the cell division
- D. shows the distribution of various species in a region



**Answer: A**



**Watch Video Solution**

**57.** Distance between the genes and percentage of recombination shows.

- A. A direct relationship
- B. An inverse relationship
- C. A parallel relationship
- D. No relationship.

**Answer: A**



**Watch Video Solution**

**58.** Type of gene mutation which involves replacement of purine with pyrimidine or vice versa or the substitution of one type of base with another type of base is

A. Transduction

B. Transversion

C. Translocation

## D. Transcription

**Answer: B**



**Watch Video Solution**

**59.** Mutations induced by 5-bromo uracil are

A. Transversional mutations

B. Transitional mutations

C. Frame shift mutations

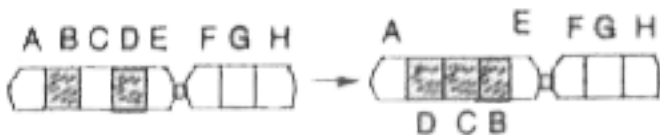
D. Backward mutations

**Answer: B**



**Watch Video Solution**

**60.** Given below is the representation of a kind of chromosomal mutation:



Identify the kind of mutation.

A. Deletion

B. Duplication

C. Inversion

D. Reciprocal translocation

**Answer: C**



**Watch Video Solution**

**61.** Inversion without involving the centromere is called

A. Paracentric

B. Monosomy

C. Pedricentric

D. Tautomerization

**Answer: A**



**Watch Video Solution**

**62.** Aneuploidy which results in loss of a complete homologous pair of chromosomes is

A. Trisomy

B. Tetrasomy

C. Nullisomy

D. Euploidy

**Answer: C**



**Watch Video Solution**

**63.** Cytoplasmic male sterility in maize is due to defective

A. Mitochondria

B. Lysosome

C. Golgi body

D. Leucoplast

**Answer: A**



**Watch Video Solution**

**64.** Duplication of same genome leads to

A. Allopolyploids

B. Autopolyploids

C. Both 1 and 2



D. Autoallopolyploids

**Answer: D**



**Watch Video Solution**

**65.** Which of the following will cause a more effective mutation?

A. One codon

B. One base deletion

C. Base substitution

D. Base deamination

**Answer: B**



**Watch Video Solution**

**66.** Recessive mutations are expressed in

A. Homozygous condition

B. heterozygous condition

C. has to express always since it is a  
mutation

D. neither in homozygous nor in a heterozygous condition

**Answer: A**



**Watch Video Solution**

**67.** If the above normal gene sequence changes to ABCABCDEF~~GH~~, then has occurred.

A. deletion

B. point mutation

C. inversion

D. duplication

**Answer: D**



**Watch Video Solution**

**68.** In gene mutations when a purine is substituted by another purine it is called as

A. transformation

B. translocation

C. transduction

D. transition

**Answer: D**



**Watch Video Solution**

**69.** If a part of gene is totally missing, it is called

A. insertion

B. inversion

C. substitution

D. deletion

**Answer: D**



**Watch Video Solution**

**70.** Conditions of a karyotype

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

A. Aneuploidy

B. Polyploidy

C. Allopolyploidy

D. Monosomy

**Answer: A**



**Watch Video Solution**

## Exercise II Sex Determination Genetic Disorders

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

A. GGG

B. AAG

C. GAA

D. GUG

**Answer: D**



**Watch Video Solution**

**2. In human beings trisomy in 23rd pair results in**



A. Klinefelter syndrome

B. Down's syndrome

C. Turner syndrome

D. Down's female

**Answer: A**



**Watch Video Solution**

**3.** The phenotypic improvement of humans after birth is known as

A. Euphenics

B. Euthenics

C. Eugenics

D. Genetic engineering

**Answer: A**



**Watch Video Solution**

**4. Phenylketonuria (PKU) is inherited disease that is characterised by**

- A. Elimination of gentisic acid in urine
- B. Increased occurrence of phenylalanine in blood nad tissues
- C. Elimination of sugar in urine
- D. Decrease in phenylalanine in blood and tissues.

**Answer: B**



**Watch Video Solution**

5. Sickle cell anaemia is an example of

A. Sex linked inheritance

B. Autosomal heritable disease


C. Infectious disease

D. Deficiency disease

**Answer: B**



**Watch Video Solution**

6.  In pedigree analysis this symbol indicates

- A. Affected male
- B. Carrier
- C. Aborted male
- D. Male died after birth

**Answer: D**



**Watch Video Solution**

7. An abnormality not due to recessive gene is

A. Phenylketonuria

B. Alkaptonuria

C. Polydactyly

D. Tay-Sach's syndrome

**Answer: C**



**Watch Video Solution**

8. Polydactyly in man is due to

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

**Answer: B**



**Watch Video Solution**

**9. Alkaptonurics excrete excess of**

- A. Urine

B. Albumen

C. Malonylacetic acid

D. Homogentisic acid

**Answer: D**



**Watch Video Solution**

**10. Royal disease**

A. Color blindness

B. Haemophilia

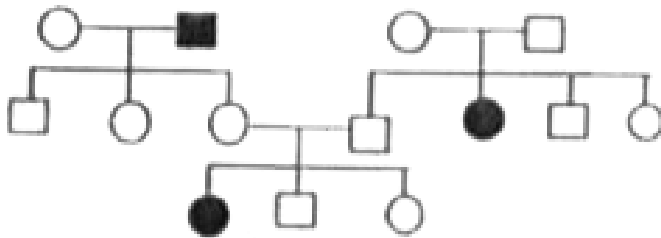


C. Mongolism

D. DMD

**Answer: B**

 [Watch Video Solution](#)



**11.**

The trait traced in this pedigree is

A. Autosomnal dominant

B. Autosomal recessive character

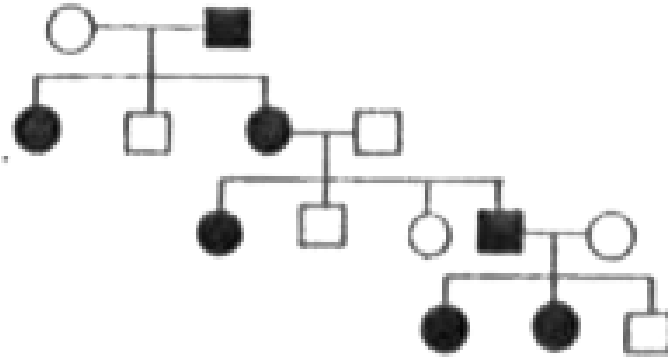
C. X-linked recessive

D. X-linked dominant

**Answer: B**



**Watch Video Solution**



12.

Trace the trait in this pedigree

- A. X-linked dominant
- B. X-linked recessive
- C. Protanopia
- D. DMD

**Answer: A**



Watch Video Solution

13. What are *ciliated* protozoans?

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

**Answer: C**



Watch Video Solution

14. Melanuria (black urine) is caused by abnormal catabolism of

A. Alanine

B. Tyrosine

C. Proline

D. Tryptophan

**Answer: B**



**Watch Video Solution**

15. Albinism is due to nonsynthesis of melanin on account of absence of enzyme

A. melanase

B. Luciferase

C. Tyrosinase

D. Lysine

**Answer: C**



**Watch Video Solution**

16. Huntington's chorea is

A. Common in Korea

B. Nervous degeneration causing  
involuntary shaking of legs, arms head

C. Disease of kidney

D. Related to diabetes

**Answer: B**



**Watch Video Solution**

17. In Huntington's chorea limb movements are

A. Rhythmic

B. Arrhythmic

C. Slow and hardly noticeable

D. Absent

**Answer: B**



**Watch Video Solution**

18. Huntington's disease is



A. 1)Autosomal dominant disease

B. 2)Autosomal recessive disorder

C. 3)Sex -linked recessive disorder

D. 4)Sex linked dominant disease

**Answer: A**



**Watch Video Solution**

**19.** A supermale XYY is characterised by

A. under production of sex hormones

B. Overproduction of sex hormones

C. Reduced intelligence but aggressive nature

D. Both 2 and 3

**Answer: D**



**Watch Video Solution**

**20. Daltonism in human being**

A. Red green colorblindness

B. Green colorblindness

C. Blue colorblindness

D. Complete colorblindness

**Answer: A**



**Watch Video Solution**

**21. In Edwards syndrome the Karyotype is**

A. 1)  $47,+13$

B. 2)  $47,XY,+18$

C. 3)46,5P-

D. 4)46,t(9:22)

**Answer: B**



**Watch Video Solution**

**22.** Pick out the correct statement from the following in relation to autosomal syndromes

A. Cri -du-chat syndrome is considered as complete monosomy

- B. Edwards syndrome occurs only in males
- C. Affected individuals in Patau syndrome are characterised by microphthalmia
- D. Chronic myelogenous leukemia is due to trisomy

**Answer: C**



**Watch Video Solution**

23. Which of the following was first in born error of metabolism detected

A. Alzheimer's disease

B. Albinism

C. Try-Sach's disease

D. Alkaptonuria

**Answer: D**



**Watch Video Solution**

24. Huntington's disease is due to a dominant autosomal gene located on

- A. Chromosome 4
- B. Chromosome 6
- C. Chromosome 9
- D. Chromosome 12

**Answer: A**



**Watch Video Solution**

25. Lack of pigmentation in skin, hair and iris are the characteristics features of

A. Alkaptonuria

B. Albinism

C. Tay-Sach's disease

D. Alzheimer's disease

**Answer: B**



**Watch Video Solution**



26. Tay Sachs disease is due to

A. Alkapton oxidase

B. Tyrosinase

C.  $\beta$ - D-N acetyl hexosaminidase enzyme

D. Dihydroxy phenylalanine hydroxylase

**Answer: C**



**Watch Video Solution**

27. Turner's syndrome is

A. 45 Autosomes and X Sex chromosomes

B. 44 Autosomes and XYY Sex  
Chromosomes

C. 45 Autosome and XYY Sex Chromosomes

D. 44 Automomes and X sex chromosomes

**Answer: D**



**Watch Video Solution**

**28.** barr body is present in

A. Sperm

B. ovum

C. Somatic cell of female

D. Somatic cell of male

**Answer: C**



**Watch Video Solution**

**29.** Which of the following abnormalities results from an unnatural presence of a Barr body that it would normally not have?

- A. Turners syndrome
- B. Downs syndrome
- C. Klinefelter syndrome
- D. All of the above

**Answer: C**



**Watch Video Solution**

**30.** A gene that masks another genes expression is called

A. Dominant characters

B. Recessive characters

C. Epistatic

D. Assorted

**Answer: C**



**Watch Video Solution**

**31.** The Cri-du-Chat Syndrome is Caused by  
Changed in Chromosome Structure involving

A. Deletion

B. Duplication

C. Inversion

D. Translocation

**Answer: A**



**Watch Video Solution**

**32.** In which mode of inheritance do you expect more maternal influence among the offspring?

A. Autosomal

B. Cytoplasmic

C. Y-linked

D. X-linked

**Answer: B**



**Watch Video Solution**

**33.** Both sickle cell anaemia and Huntington's cholera are

A. Bacteria related diseases

B. Congenital disorders

C. Pollutant induced disorders

D. Virus related diseases

**Answer: B**



**Watch Video Solution**

**34.** Which one pair of the parents out of the following is most likely to get a child who



would suffer from hemolytic disease of the new born.

A.  $Rh^+$  mother &  $Rh^-$  father

B.  $Rh^-$  mother &  $Rh^-$  father

C.  $Rh^+$  mother &  $Rh^+$  father

D.  $Rh^-$  mother &  $Rh^+$  father

**Answer: D**



**Watch Video Solution**

**35. X-linked dominant trait is**

A. Duchenne muscular dystrophy

B. Hypertrichosis

C. Follicular hyperkeratosis

D. Mongolian idiocy

**Answer: C**



**Watch Video Solution**

**36.** Y-chromosome was first identified by

A. Henking

B. Barr and Bertram

C. Stevens and Wilson

D. McClung

**Answer: C**



**Watch Video Solution**

37. A woman who is homozygous for Incontinentia pigmenti is married to a normal man. In their children, IP appears in

- A. only sons
- B. 50% of children
- C. Only daughters
- D. All the children

**Answer: D**



**Watch Video Solution**

**38.** Haemophilia -A is due to the deficiency of

- A. Anti haemophilic globulin
- B. plasms thromboplastin component
- C. Plasma thromboplastin antecedant
- D. Tissue thromboplastin

**Answer: B**



**Watch Video Solution**

**39.** Explain: True fruits.



**Watch Video Solution**

**40.** Blue blindness

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

**Answer: D**



**Watch Video Solution**

**41.** In *Drosophila*, red eye and white eye traits appear in both male and female flies, when a cross is made between

A. White eyed female and red eyed male

B. White eyed male and homozygous red eyed female

C. White eyed male and heterozygous red eyed female

D. Red eyed male and heterozygous red eyed female

**Answer: C**

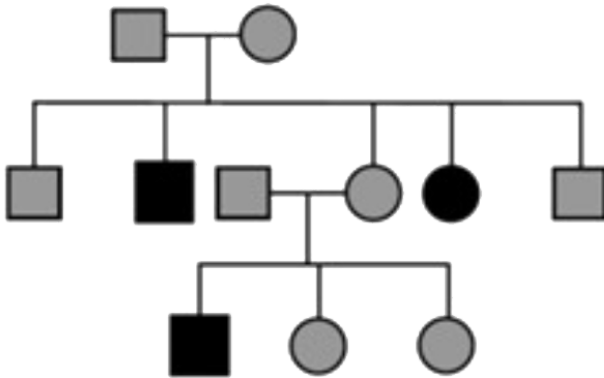


**Watch Video Solution**

**42.** Given pedigree belongs to autosomal recessive disorder , which of the following



represents parental genotypes correctly ?



- A. Deutanopia
- B. Tritanopia
- C. Phrynoderma
- D. Protanopia

**Answer: B**





[Watch Video Solution](#)

**43.** In born error of metabolism discovered in humans by Sir Archibald Garrod is

- A. Alkaptonuria
- B. phenylketonuria
- C. ketonuria
- D. sickle cell anaemia

**Answer: A**



[Watch Video Solution](#)

44. Huntington's disease is caused by

A. recessive gene on y chromosome

B. recessive gene on x chromosome

C. dominant gene on autosome

D. sex influenced gene on autosome

**Answer: C**



**Watch Video Solution**

**45.** The enzyme that is not produced in human albinism is

A. 1) Phenyl alanine hydroxylase

B. 2) Tyrosinase

C. 3) Tyrosine kinase

D. 4) Protein Kinases

**Answer: B**



**Watch Video Solution**

**46.** Why does cri-du-chat syndrome takes place?

A. microphthalmia

B. defective larynx

C. cleft palate

D. enlarged head

**Answer: B**



**Watch Video Solution**

## Exercise II Ncert Exemplar Problems

1. All genes located on the same chromosome
  - A. Form different groups depending upon their relative distance
  - B. Form one linkage group
  - C. will not form any linkage groups
  - D. Form interactive groups that affect the phenotype

**Answer: B**



Watch Video Solution

2. Conditions of a karyotype

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

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

**Answer: A**



3. Distance between the genes and percentage of recombination shows

- A. A direct relationship
- B. An inverse relationship
- C. A parallel relationship
- D. No relationship.

**Answer: A**





4. 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**

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

A. GGG

B. AAG

C. GAA

D. GUG

**Answer: D**



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

- A. Pleiotropy
- B. Co-dominance
- C. Segregation of unit factors
- D. Incomplete dominance

**Answer: B**



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

A. Platypus

B. Snails

C. Cockroach

D. Peacock

**Answer: D**



**Watch Video Solution**

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

A. TT and Tt

B. Tt and Tt

C. TT and TT

D. Tt and tt

**Answer: B**



**Watch Video Solution**

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

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

**Answer: D**



**Watch Video Solution**

10. 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**



**Watch Video Solution**

11. 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: B**



**Watch Video Solution**



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

A. Multiple allelism

B. Mosaicism

C. Pleiotropy

D. Polygeny

**Answer: C**



**Watch Video Solution**

**13.** 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**



**Watch Video Solution**

14. 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. Medelian trait

C. Polygenic trait

D. Meternal trait

**Answer: B**



**Watch Video Solution**

**15.** 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  $F_3$  generation of a cross

B. Observation that the offspring of a cross made between the plants having two

constrsting characters shows only one character without any blending.

C. Self pollination of  $F_1$  offsprings

D. Cross pollination of  $F_1$  generations with recessive parental.

**Answer: B**



**Watch Video Solution**

**16.** Two genes 'A' and 'B' are linked. In a dihybrid cross involving these two genes, the F<sub>1</sub> heterozygote is crossed with homozygous recessive parental type (aa bb). What would be the ratio of offspring in the next generation?

A. 1:1:1:1

B. 9:3:3:1

C. 3:1

D. 1:1

**Answer: D**



**Watch Video Solution**

**17.** 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**



**Watch Video Solution**

**18.** 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 of 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 Blood group, respectively

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

**Answer: C**



**Watch Video Solution**

## Exercise Iii Previous Aipmt Neet Questions

1. Which of the following most appropriately describes haemophilia?

- A. Dominant gene disorder
- B. Recessive gene disorder
- C. X-linked recessive gene disorder
- D. Chromosomal disorder

**Answer: C**



**Watch Video Solution**

## 2. 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,b and c are correct

B. b and d are correct

C. b and d are correct

D. a,c and d are correct

**Answer: A**



**Watch Video Solution**

**3. Alleles are:**

A. Heterozygotes

B. Different phenotype

C. True breeding homozygotes

D. Different molecular forms of a gene

**Answer: D**



**Watch Video Solution**

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

- A. Recombination
- B. Transduction
- C. Chromosomal aberrations
- D. Genetic drift

**Answer: A**



**Watch Video Solution**

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

A. Seven

B. Five

C. Six

D. Eight

**Answer: A**



**Watch Video Solution**

**6. The term "linkage" was coined by**

A. W.Sutton

B. T.H.Morgan

C. T.Boveri

D. G.Mendel

**Answer: B**



Watch Video Solution

7. A pleiotropic gene :

- A. Controls multiple traits in an individual
- B. Is expressed only in primitive plants
- C. Is a gene evolved during Pliocene
- D. Controls a trait only in combination with another gene

**Answer: A**





[Watch Video Solution](#)

8. In his classic experiments on pea plants

Mendel did not use

A. Flower position

B. Seed colour

C. Pod length

D. Seed shape

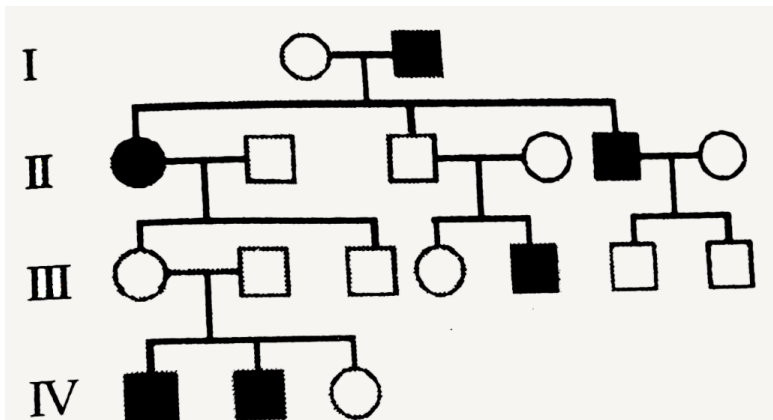
**Answer: C**



[Watch Video Solution](#)

9. In the following human pedigree, the filled symbols represent the affected individuals.

Identify the type of given pedigree



A. X-linked dominant

B. Autosomal dominant

C. X-linked recessive

D. Autosomal recessive trait

**Answer: D**



**Watch Video Solution**

**10.** 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. 0.25

B. 0.5

C. 1

D. nil

**Answer: A**



**Watch Video Solution**

**11.** 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**



**Watch Video Solution**

12. 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. 0.4

B. 0.5

C. 0.6

D. 0.7

**Answer: C**



Watch Video Solution

**13.** A man whose father was colour blind married a woman who had a colour blind mother and normal father. What percentage of male children of the couple will be colour blind?

A. 0.25

B. 0

C. 0.5

D. 0.75

**Answer: C**



**Watch Video Solution**

**14.** Fruit colour in squash is an example of

- A. Recessive epistasis
- B. Dominant epistasis
- C. Complementary genes
- D. Inhibitory genes

**Answer: B**





Watch Video Solution

15. A human female with Turner's syndrome

- A. Is able to produce children with normal husband
- B. Has 45 chromosomes with XO
- C. Has one additional X chromosome
- D. Exhibits male characters

**Answer: B**



Watch Video Solution

16. An analysis of chromosomal DNA using the Southern hybridization technique does not use:

- A. PCR
- B. Electrophoresis
- C. Blotting
- D. Autoradiography

**Answer: A**



Watch Video Solution

17. If both parents are carriers for thalassemia, which is an autosomal recessive disorder, what are the chances of pregnancy resulting in an affected child?

A. no chance

B. 0.5

C. 0.25

D. 1

**Answer: C**



**Watch Video Solution**

**18.** Which of the following statements is not true of two genes that show 50% recombination frequency?

A. The genes may be on different chromosomes

B. The genes are tightly linked

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

D. The frequency of crossing over is inversely proportional to the distance between two genes

**Answer: B**



**Watch Video Solution**

19. Which Mendelian idea is depicted by a cross in which the  $F_1$  generation resembles both the parents

- A. Incomplete dominance
- B. Law of dominance
- C. Inheritance of one gene
- D. Codominance

**Answer: D**



**Watch Video Solution**

20. A certain road accident patient with unknown blood group needs immediate blood transfusion. His one doctor friend at once offers his blood. What was the blood group of the donor?

A. Blood group O

B. blood group A

C. Blood group B

D. Blood group AB

**Answer: A**



Watch Video Solution

21. 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. 0.25

B. 0.5

C. 1



D. zero percent

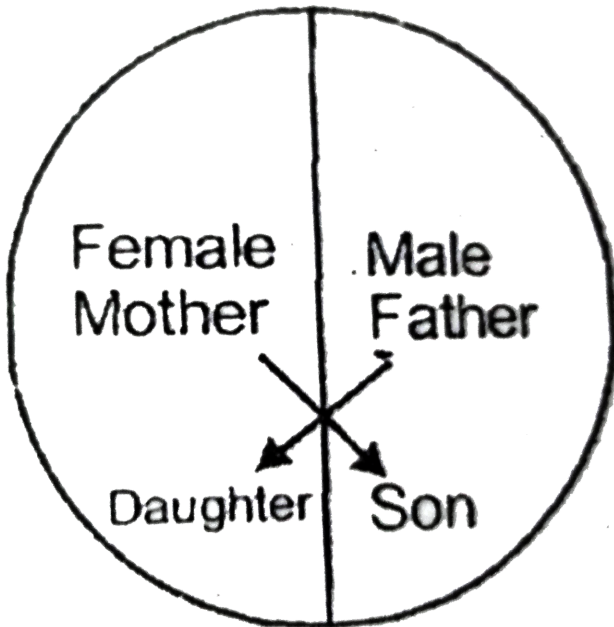
**Answer: D**



**Watch Video Solution**

**22.** Represented below is the inheritance pattern of certain type of traits in humans. Which one of the following conditions could

be an example of this pattern ?



- A. Haemophilia
- B. Thalasemia
- C. phenylketonuria
- D. Sickle cell anaemia

**Answer: A**



**Watch Video Solution**

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

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

B. XO condition in humans as found in Turner syndrome, determine female sex.

C. Homozygous sex chromosomes (xx)

produce male in drosophila

D. Homozygous sex chromosomes (zz)

determine female sex in birds.

**Answer: A**



**Watch Video Solution**

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

A. 63

B. 84

C. 21

D. 42

**Answer: A**



**Watch Video Solution**

**25. Which one of the following has its own DNA ?**

A. Mitochondria

B. Dictyosome

C. Lysosome

D. Peroxisome

**Answer: A**



**Watch Video Solution**

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

A.  $\square \text{---} \circ$  = mating between relatives

B.  $\circ$  = unaffected male

C.  $\square$  = unaffected female

D.  $\blacklozenge$  = male affected

**Answer: A**



**Watch Video Solution**

**27. Sickle cell anaemia is an example of**

**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 base pair of DNA

D. characterized by elongated sickel like RBCs with nucleus

**Answer: C**



**Watch Video Solution**



28. What are sporozoans?

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

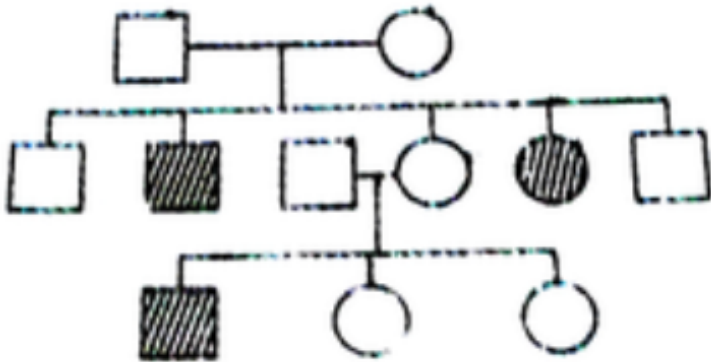
**Answer: D**

---



Watch Video Solution

29. 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**



**Watch Video Solution**

**30.** Point (Gene mutation) mutation involves

A. insertion

B. change in single base pair

C. duplication

D. deletion

**Answer: B**



**Watch Video Solution**

31. Which one of the following condition in humans is correctly matched with its chromosomal abnormality/linkage?

A. Klinefelter's syndrome -44

autosomes+XXY

B. Coourbliridness-Y-linked

C. Erythroblastosis foetalis --X-linked

D. Down syndrome --44autosomes+XO

**Answer: A**





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

A. 50 : 50

B. 9 : 1

C. 1 : 3

D. 3 : 1

**Answer: A**



**Watch Video Solution**

**33.** What is true about the isolated small tribal populations?

A. There is a decline in population as boys

marry girls only from their own tribe

B. Hereditary diseases like colour

blindness do not spread in the isolated

population

C. Wrestlers who develop strong bodh muscles intheir life time pass this character on to their progeny

D. There is no change in population size as they have a large gene pool

**Answer: B**



**Watch Video Solution**



**34.** A common test to find the genotype of a hybrid is by: a) Crossing of one  $F_2$  progeny with female parent b) Studying of sexual behaviour of  $F_1$  progeny c) Crossing of one  $F_1$  progeny with homozygous recessive parent d) Crossing of one  $F_2$  progeny with male parent

A. Crossing of one  $F_2$  progeny with male parent

B. crossing of one  $F_2$  progeny with female parent

C. Studying the sexual behaviour of  $F_1$  progenies

D. crossing of one  $F_1$  progeny with male parent

**Answer: D**



**Watch Video Solution**

**35.** Two genes R and Y are located very close on the chromosomal linkage map of maize

plant. When RRY<sub>Y</sub> and rryy genotypes are hybridized the F<sub>2</sub> segregation will show

- A. higher number of there combinant typcs
- B. segregation in the expected 9:3:3:1 ratio
- C. segregation in 3:1 ratio
- D. higher number of te paretal types

**Answer: D**



**Watch Video Solution**

**36.** What is notochord?

A. aaBB × aaBB

B. AABB × aabb

C. AaBb × AaBb

D. AABB

**Answer: A**



**Watch Video Solution**

**37.** What is true about the isolated small tribal populations?

A. There is a decline in population as boys

marry girls only from their own tribe

B. Hereditary diseases like colour

blindness do not spread in the isolated

population

C. Wrestlers who develop strong bodh

muscles in their life time pass this

character on to their progeny

D. There is no change in population size as they hav a large gene pool

**Answer: B**



**Watch Video Solution**