



BIOLOGY

BOOKS - FULL MARKS BIOLOGY (TAMIL ENGLISH)

PRINCIPLES OF INHERITANCE AND VARIATION

Textbook Evaluation Solved

1. Haemophilia is more common in males because it is a

A. Recessive character carried by Y - chromosome

B. Dominant character carried by Y - chromosome

C. Dominant trait carried by X - chromosome

D. Recessive trait carried by X-chromosome

Answer: D



Watch Video Solution

2. ABO blood group in man is controlled by

- A. Multiple alleles
- B. Lethal genes
- C. Sex linked genes
- D. Y - linked genes

Answer: A



Watch Video Solution

3. Three children of a family have blood groups A, AB and B. What could be the genotypes of their parents?

A. $I^A I^B$ and $i i$

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

C. $I^B I^B$ and $I^A I^A$

D. $I^A I^A$ and $i i$

Answer: B



Watch Video Solution

4. Which of the following is not correct?

A. Three or more alleles of a trait in the population are called multiple alleles .

B. A normal gene undergoes mutations to form many alleles

C. Multiple alleles map at different loci of a chromosome

D. A diploid organism has only two alleles out of many in the populations .

Answer: C



Watch Video Solution

5. Which of the following phenotypes in the progeny are possible from the parental combination $A \times B$?

A. A and B only

B. A,B and AB only

C. AB only

D. A,B,AB and O

Answer: D



Watch Video Solution

6. Which of the following phenotypes is not possible in the progeny of the parental genotypic combination $I^A I^O \times I^A I^B$?

A. AB

B. O

C. A

D. B

Answer: B



Watch Video Solution

7. Which of the following is true about Rh factor in the offspring of a parental combination DdXdDd (both Rh positive)?

A. (a) All will be Rh positive

B. (b) Half will be Rh positive

C. (c) About $\frac{3}{4}$ will be Rh negative

D. (d) About one fourth will be Rh negative

Answer: D



Watch Video Solution

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

A. A,B and AB

B. A,B, AB and O

C. A,B,AB and O

D. A and B only

Answer: B



Watch Video Solution

9. If the child's blood group is 'O' and father's blood group is 'A' and mother's blood group is 'B' the genotype of the parents will be

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

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

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

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

Answer: B



Watch Video Solution

10. XO type of sex determination and XY type of sex determination are examples of.

- A. Male heterogamety
- B. Female heterogamety
- C. Male homogeneity
- D. Both (b) and (c)

Answer: A



Watch Video Solution

11. In an accident there is great loss of blood and there is no time to analyse the blood group which blood can be safely transferred?

A. O' and Rh negative

B. O' and Rh positive

C. B' and Rh negative

D. AB' and Rh positive

Answer: A



Watch Video Solution

12. Father of a child is colourblind man and a normal women produces..... . .

A. (a) 0.25

B. (b) 0.5

C. (c) 1

D. (d) 0.75

Answer: B



Watch Video Solution

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

A. All carrier daughters and normal sons

B. 50% carrier daughters, 50% normal daughters

C. 50% colourblind sons, 50% normal sons

D. All carrier offsprings

Answer: A



Watch Video Solution

14. Mangolism is a genetic disorder which is caused by the presence of an extra chromosome number.

A. 20

B. 21

C. 4

D. 23

Answer: B



Watch Video Solution

15. Klinefelter's syndrome is characterized by a karyotype of

A. XYY

B. XO

C. XXX

D. XXY

Answer: D



Watch Video Solution

16. The person with Turner's syndrome has

- A. small uterus
- B. Rudimentary ovaries
- C. Underdeveloped breasts
- D. All of these

Answer: D



Watch Video Solution

17. Patau's syndrome is also referred to as

A. 13-Trisomy

B. 18-Trisomy

C. 21-Trisomy

D. None of these

Answer: A



Watch Video Solution

18. Who is the founder of Modern Eugenics movement?

A. Mendel

B. Darwin

C. Fransis Galton

D. Karl pearson

Answer: C



Watch Video Solution

19. Improvement of human race by encouraging the healthy persons to marry

early and produce large number of children is called

- A. Positive eugenics
- B. Negative eugenics
- C. Positive euthenics
- D. Positive euthenics

Answer: A



Watch Video Solution

20. The _____ deals with the control of several inherited human diseases especially inborn errors metabolism.

A. Euthenics

B. Eugenics

C. Euthenics

D. All of these

Answer: A



Watch Video Solution

21. "Universal Donor" and "Universal Recipients" blood group are ____ and ____ respectively.

A. AB,O

B. O,AB

C. A,B

D. B,A

Answer: B



Watch Video Solution

22. ZW-ZZ system of sex determination occurs in

A. Fishes

B. Reptiles

C. Birds

D. All of these

Answer: D



Watch Video Solution

23. Co-dominant blood group is

A. A

B. AB

C. B

D. O

Answer: B



Watch Video Solution

24. Which of the following is incorrect regarding ZW-ZZ type of sex determination?

A. It occurs in birds and some reptiles

B. Females are homogametic and males are hetrogametic

C. Male produce two types of gametes

D. It occurs in gypsy moth

Answer: B



Watch Video Solution

25. Define haplodiploidy.



Watch Video Solution

26. Distinguish between heterogametic and homogametic sex determination systems?



Watch Video Solution

27. What is Lyonisation?





[Watch Video Solution](#)

28. Define criss-cross inheritance.



[Watch Video Solution](#)

29. Why are sex linked recessive characters more common in the male human beings?



[Watch Video Solution](#)

30. What are holandric genes?



Watch Video Solution

31. Mention any three symptoms of (a) Phenylketonuria (b) Down's syndrome



Watch Video Solution

32. Mention the symptoms of Down's syndrome.



[Watch Video Solution](#)

33. Differentiate Intersexes from Supersexes.



[Watch Video Solution](#)

34. Explain the genetic basis of ABO blood grouping man.



[Watch Video Solution](#)

35. How is sex determined in human beings?



Watch Video Solution

36. Explain male heterogamety.



Watch Video Solution

37. Brief about female heterogamety.



Watch Video Solution

38. Give an account of genetic control of Rh factor ?



Watch Video Solution

39. Explain the mode of sex determination in honeybees.



Watch Video Solution

40. Discuss the genic balance mechanism of sex determination in *Drosophila* ?



Watch Video Solution

41. List any three applications of karyotype.



Watch Video Solution

42. What is inheritance of acquired characters?



[Watch Video Solution](#)

43. What are extra chromosomal inheritance ?

Explain with an example .



[Watch Video Solution](#)

44. Comment on the methods of Eugenicis.



[Watch Video Solution](#)

1. If a colorblind female marries a normal male, their sons will be

A. All normal visioned

B. All color blinded

C. One half normal visioned other half colorblind

D. There fourth colorblind one fourth normal

Answer: c



Watch Video Solution

2. Excess hair growth on pinna is feature noticed only in males because..... .

A. Males produce more testosterone

B. gene responsible for the character is located in Y-chromosome

C. Estrogen suppresses the character in females

D. females act only as a carriers for this character

Answer: b



Watch Video Solution

3. ABO blood group in human is an example of

A. Multiple allelism

B. Pleiotropism

C. Incomplete dominance

D. Polygenic mechanism

Answer: a



Watch Video Solution

4. Unit of heredity is

A. allele

B. allelomorph

C. trait

D. gene

Answer: d



Watch Video Solution

5. Identify the proper dominance hierarchy.

A. (a) $I^A = I^O > I^B$

B. (b) $I^a = I^B > O$

C. (c) $I^O = I^B > I^A$

D. (d) $I^B = I^A > O$

Answer: b



Watch Video Solution

6. Haemophilia in man is due to

- A. X-linked dominant gene
- B. X-linked recessive gene
- C. Y-linked recessive gene
- D. Allosomal abnormality

Answer: b



Watch Video Solution

7. Identify the correct statement.

A. Homozygous sex chromosome (XX)

produce males in *Drosophila*

B. Homozygous sex chromosome (ZZ)

determine female sex in birds

C. Heterozygous sex chromosome (XO)

determine male sex in grasshopper

D. Heterozygous sex chromosome (ZW)

determine male sex in gypsy moth

Answer: c



Watch Video Solution

8. Which blood group does not possess antibodies?

A. $I^A I^B$

B. $I^O I^O$

C. I^{AO}

D. $I^B I^B$

Answer: a



Watch Video Solution

9. Assertion (A): On diagnosis. Ramu is reported to have under developed testis and gynaecomastia.

Reason (R): His karyotype reveals XXY condition.

A. A is right but R is wrong

B. R explains A

C. Both A and R are wrong

D. Both A and R are right but R is not the correct explanation of A

Answer: b



Watch Video Solution

10. Find out the odd man out

A. Klinefelter's syndrome

B. Turner's syndrome

C. Huntington's chorea

D. 13-Trisomy

Answer: c



Watch Video Solution

11. Pick out the odd one out regarding Mendelian disorder.

A. Thalassemia

B. phenylketonuria

C. Albinism

D. Huntington's chorea

Answer: d



Watch Video Solution

12. Match the following

A Down 's syndrome

i. $44AA + XXY$

B Patau's Syndrome

ii. $45AA + XY$

C Klinefelter's syndrome

iii. $44AA + XO$

D Turner's sundrome

iv. $45AA + XX$

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

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

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

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

Answer: a



Watch Video Solution

13. If a colorblind female marries a normal male, their sons will be

A. 1:1

B. 3:1

C. 1:3

D. All four are normal visioned

Answer: c



Watch Video Solution

14. Pick out the correct statement.

(i) Karyotyping helps in gender identification

(ii) Holandric genes are located on X-chromosome

(iii) Trisomy- 21 is an allosomal abnormality

(iii) Cooley's anaemia is an autosomal recessive disorder

A. i, iii, iv are correct

B. i and iii are correct

C. I and iv are correct

D. iv only correct

Answer: c



Watch Video Solution

15. DOPA stands for..... . .

- A. 3, 4 - dihydroxy phenyl acetate
- B. 3, 4 - dihydroxy phenyl alanine
- C. 3, 4 - dihydroxy phenyl asparate
- D. 3, 4 - dihydroxy phenyl aldehyde

Answer: b



Watch Video Solution

16. Antiodies developed against Rh antigen is called _____.

A. IgE

B. IgG

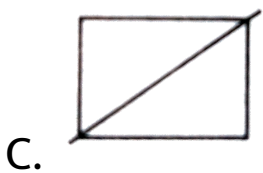
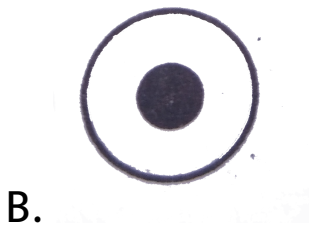
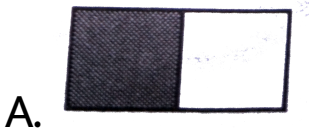
C. IgA

D. IgB

Answer: b



17. Which of the following symbol is used in pedigree analysis to represent unspecified sex?



D. 

Answer: d

 [Watch Video Solution](#)

18. A colorblind man marries a women with normal sight who has no history of color blindness in her family. What is the probability of their grandson being colorblind?

A. $1/4$

B. $3/4$

C. $2/4$

D. $4/4$

Answer: a



Watch Video Solution

19. What are multiple alleles?

A. at different loci on homologous

chromosome

B. at same locus on homologous
chromosome

C. at different loci on non- homologous
chromosome

D. at different chromosome

Answer: b



Watch Video Solution

20. Identify the incorrect statement regarding haplodiploidy

- A. Haplodiploidy is noticed in honeybees and drosophila
- B. Unfertilized eggs develop into drones
- C. Fertilized eggs develop into queen and worker bees
- D. Males have half the total chromosomal number

Answer: a



Watch Video Solution

21. I^A and I^B genes of ABO blood group are

.....

A. Co-dominant

B. Pleiotropic

C. Dominant and recessive

D. Epistatic

Answer: a



Watch Video Solution

22. Which one of the following crosses show 3 : 1 ratio of normal visioned versus carrier blind?

A. $X^C X^C \times X^+ Y$

B. $X^+ X^C \times X^C Y^-$

C. $X^+ X^C \times X^+ Y^-$

D. $X^+ X^+ \times X^C Y^-$

Answer: c



Watch Video Solution

Additional Questions 2 Mark Question

1. Define multiple allelism.



Watch Video Solution

2. Name the discoverers of antigen A, B and AB.



[Watch Video Solution](#)

3. Type A blood should not be injected to a person having B-blood group. Why?



[Watch Video Solution](#)

4. State the allelic forms of I gene and mention its chromosome location



Watch Video Solution

5. Write the possible genotypes for a person having B-blood group.



Watch Video Solution

6. Write about Wiener hypothesis?



[Watch Video Solution](#)

7. Distinguish homogametes and heterogametes.



[Watch Video Solution](#)

8. ZW-ZZ system of sex determination occurs in



[Watch Video Solution](#)

9. Expand (a) SRY (b) TDF



Watch Video Solution

10. Define Barr body.



Watch Video Solution

11. Based on Lyon's hypothesis, mention the number of Barr bodies in XXY males, XO females.



[Watch Video Solution](#)

12. State Lyon's hypothesis.



[Watch Video Solution](#)

13. Define sex linked inheritance.



[Watch Video Solution](#)

14. Explain the process of Karyotyping.



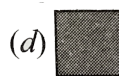
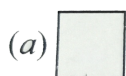
[Watch Video Solution](#)

15. Explain the inheritance pattern of Y-linked genes with example.



[Watch Video Solution](#)

16. Observe the symbol used pedigree analysis, and give the proper terms they represent.



[Watch Video Solution](#)

17. Write a brief note on pedigree analysis.



Watch Video Solution

18. What do you mean by 'Mendelian disorder.



Watch Video Solution

19. Name any four Mendelian disorders.



Watch Video Solution

20. What is the phenotype of (a) $I^A I^O$

(b) $I^O I^O$



[Watch Video Solution](#)

21. On which chromosome does HBA 1 gene and HBB genes are located?



[Watch Video Solution](#)

22. Complete the equation.

(a) Phenylalanine \xrightarrow{A} Tyrosine

(b) DOPA \xrightarrow{B} Melanin



[Watch Video Solution](#)

23. Write a note on Huntington's chorea .



[Watch Video Solution](#)

24. Comment on Trisomy-21



[Watch Video Solution](#)

25. Mention the genetic makeup of Turner's syndrome person and Klinefelter's syndrome person.



[Watch Video Solution](#)

26. List out any four clinical symptoms of Klinefelter's syndrome.



[Watch Video Solution](#)

27. Write the types of sex- determination mechanisms does the following crosses as shown. Give an example for each.

(a) Female XX with Male XO (b) Female ZW with Male ZZ



[Watch Video Solution](#)

28. What are they enzymes encoded by the alleles



[Watch Video Solution](#)

29. Draw a tabular column representing various types of blood group in human beings, their phenotypes, genotypes, antigens and respective antibodies.



Watch Video Solution

30. Give an account on Rhesus factor.



Watch Video Solution

31. How Erythroblastosis fetalis can be prevented ?



Watch Video Solution

32. Explain XX-XO type of sex determination.



Watch Video Solution

33. Name the type of sex-determination mechanism of the following organisms.

(a) Gypsy moth (b) Human beings (c)

Butterflies



Watch Video Solution

34. Complete the following cross.

$AA\ ZW \times AA\ ZZ$
female male



Watch Video Solution

35. Role of Y-chromosome is crucial for maleness - Justify.



[Watch Video Solution](#)

36. (a) Explain the statement that color blindness is perfect example for criss -cross inheritance with a flowchart.



[Watch Video Solution](#)

37. How the Karyotype of lymphocytes was prepared by Tjio and Levan? Edit How the

Karyotype of lymphocytes was prepared by

Tjio



[Watch Video Solution](#)

38. What is a genetic disorder? Mention its types?



[Watch Video Solution](#)

39. Explain the genetic basis of Phenylketonuria.



Watch Video Solution

40. Give an account on Patau's syndrome.



Watch Video Solution

41. Differentiate Aneuploidy and Euploidy.



Watch Video Solution

42. What do you mean by? "syndrome"? Give two examples.



[Watch Video Solution](#)

Additional Questions 5 Mark Question

1. Describe female heterogamy and its types .

Heterogametic Females :



[Watch Video Solution](#)

2. Discuss any two Allosomal anomalies in human .

Allosomal abnormalities in human beings .



[Watch Video Solution](#)

Additional Questions 5 Mark Question

1. (a) Write in detail about the following Mendelian disorders (i) Thalassemia (ii) Albinism



 [Watch Video Solution](#)

Higher Order Thinking Skills Hots Questions

1. On analysis , a person 's karyotype reveals an extra one chromosome of twenty first pair . What does ths condition represents ? Which type of symptoms can be noticed in the person ?



[Watch Video Solution](#)

2. A female whose blood group is AB^- got conceived and later it is diagnosed that her foetus possess B^+ What measures would be taken to prevent the focus from Hae molytic disease of New born (HDN



[Watch Video Solution](#)

3. The following table shows the genotypes for blood grouping and this phenotypes .

Complete the table by filling the gaps .

S.No	Genotype	Phenotype
1	$I^A I^A$	A
2	?	A
3	?	AB
4	$I^O I^O$?



[Watch Video Solution](#)

4. Give one example for each of the following group of drugs .

(a) Stimulants (b) Analgesic (c) Hallucinogens



[Watch Video Solution](#)