



# BIOLOGY

## BOOKS - MBD

### HEREDITY AND EVOLUTION

#### Example

1. What are different ways in which individuals with a particular trait may increase in a population?



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2. How does the creation of variations in a species ensure survival?



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3. How do Mendel's experiments show that a gene may be dominant or recessive?



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4. How do Mendel's experiments prove that traits are inherited independently?



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5. A man with blood group A married a woman with blood group B. They have a son with AB blood group and a daughter with blood group O. Work out the cross and show the possibility of such inheritance.



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6. How Is sex determined in human beings?



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7. What are different ways in which individuals with a particular trait may increase in a population?



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8. Why are traits acquired during life-time of an individual not inherited?



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9. Why are the small number of surviving tigers is a cause of worry from the point of view of genetics?



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**10.** What factors could lead to the rise of new species?



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**11.** Will geographical isolation be a major factor in the speciation by a self-pollinating plant species? Why or why not?



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**12.** Will geographical isolation be a major factor in the speciation of an organism that reproduces asexually? Why or why not



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**13.** Give an example of a characteristic being used to determine how close two species are in evolutionary terms?



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**14.** Can the wing of butterfly and wing of a bat be considered homologous organs? Why or why not



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**15.** What are fossils? What do they tell us about the process of evolution?



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**16.** Why are human beings which look so different from each other in terms of size. Colour and looks are said to be belonging to the same species?



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**17.** In evolutionary terms can we say that which among bacteria, spider, fish and chimpanzee have a better body design? Why or why not?



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**18.** A mendelian experiment consisted of breeding tall pea plants bearing violet flower with short pea plants bearing white flowers. The progeny all bore violet flowers, but almost half of them were short this suggests that the genetic make-up of the tall parent can be depicted as:

A. TTWW

B. TTww

C. TtWW

D. TtWw

**Answer:**



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**19.** An example of homologous organs is:

- A. our arm and a dog's fore-leg
- B. our teeth and an elephant's tusks
- C. potato and runners of grass
- D. all of the above

**Answer:**



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20. A study found that children with light-coloured eyes are likely to have parents with light-coloured eyes. On this basis, can we say anything about whether the light- eye colour trait is dominant or recessive ? Why or why not?



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21. In evolutionary terms , we have more in common with:

A. a chinese school-boy

B. a chimpanzee

C. a spider

D. a bacterium

**Answer:**



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**22.** How are the areas of study of evolution and classification interlinked?



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**23.** Explain the terms homologous and analogous organs with example



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**24.** Outline a project which aims to find the dominant coat colour in dogs



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**25.** Explain the importance of fossils in deciding evolutionary relationship



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**26.** What evidence do we have for the origin of life from inanimate matter?



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**27.** Explain how sexual reproduction gives rise to more viable variation than asexual reproduction how does this affect the evolution of those organisms that reproduce sexually?



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**28.** How is equal genetic contribution of male and female presents assured in the progeny ?



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**29.** Only variations that confer an advantage to an individual organism will survive in a population. Do you agree with statKHOent? Why or why not?



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**30.** Describe briefly Mendel's experiment.



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**31.** Give a brief account of present day concept of evolution



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**32.** Why is mendel known as father of genetics?



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**33.** Write contribution of mendel



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**34.** Explain monohybrid cross



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**35.** Explain Mendel's law of segregation with the help of a monohybrid cross.



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**36.** Explain Mendel's law of independent assortment with the help of a dihybrid cross.



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**37.** State the hypothesis of Oparin and Haldane about the primeval earth condition. What do you understand by Haldane's hot dilute soup? State its significance.



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**38.** Summarise miller's simulation experiment for organic sythesis.



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**39.** How human evolution take place over the years?



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**40.** What is meant by heredity?





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41. What is genetics?



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42. What are the causes of variations in clones?



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**43.** Explain the term variation?



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**44.** Write one difference between continuous and discontinuous variations (b) give differences between germinal and somatic variations?



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**45.** What do you mean by discontinuous variation?



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**46.** What is the importance of variation?



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**47.** Mention the information source of making protein in the cell what is the basic event in



reproduction



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**48.** Why did mendel choose garden pea for his experiments?



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**49.** Make a table showing characters of pea selected by mendel.



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**50.** What is monohybrid cross?



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**51.** State and explain principle of dominance?



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**52.** What is a dihybrid cross?



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**53.** What is a gene? What is the nature of gene?



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**54.** Where are genes located? What is the chemical nature of gene?



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**55.** In man four types of blood groups a,b,ab and o are controlled by three alleles of a gene.What is the machanism of inheritance of the blood groups?



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**56.** A man with blood group A marries a woman with blood group B. What will be the genotype of man and woman if one of their child is born withblood group O ? Show the

type of progeny formed with help of Punnett square.



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**57.** Define genetic engineering. Write applications of genetic engineering



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**58.** Give a graphic representation of mechanism of gene expression



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**59.** Write the contribution of urey and miller



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**60.** What are homologous organs? Give examples



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**61.** What are analogous organs? Give examples



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**62.** Differentiate homologous organs and analogous organs



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**63.** Are the fossils being formed at present time?



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**64.** What is the physical method of determining the age of fossils?



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**65.** Discuss the importance of artificial selection in the derivation of the concept of natural selection



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**66.** Distinguish between microevolution and macroevolution narrate the significance of population genetics in evolution.



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**67.** What is variation ? Name the basic process that cause variations among organisms. Discuss the role of migration in evolution



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**68.** Define variations in relation to species why is variation beneficial to the species?



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**69.** Explain genetic drift.



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**70.** What is reproductive isolation?



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**71.** Give a brief account of present day concept of evolution



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**72.** How is equal genetic contribution of male and female presents assured in the progeny ?



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**73.** How does the creation of variations in a species ensure survival?



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**74.** How are new organisms formed?



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**75.** Do you find more variation amongst human or in sugarcane fields



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**76.** What do the progeny get from parents?



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**77.** Organisms reproducing by asexual reproduction show a few variation.



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**78.** What is the basis of evolution?



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**79.** What are functional unit of hereditary material?



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**80.** Coin the term for transfer of characters from parents to offspring



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**81.** Who is the father of genetics?



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**82.** Mendel worked on which plant having alternate traits?



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**83.** Mention any two of the seven contrasting traits of garden pea selected by Mendel



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**84.** What is recessive?



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**85.** What is dominance?



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**86.** Information for synthesis of proteins is stored in which part of cell



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**87.** What is gene for protein?



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**88.** Name the structure or molecules which control the traits



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**89.** Name the carriers of genes



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**90.** What is gene according to molecular structure?



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**91.** Name the alternative form of gene



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**92.** How many pairs of chromosomes are present in male/female human?



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**93.** Write sex-chromosome of fKHOale



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**94.** Write sex-chromosome of male



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**95.** Which chromosome determine the sex of child



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**96.** If in vegetation of green plants, what will happen if green beetles are not distinguished as compared to red beetles.



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**97.** What is evolution?



**Watch Video Solution**

**98.** What is the basis of evolution?



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**99.** What is the effect of starvation on DNA in beetles?



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**100.** What are the causes of inbuilt tendency of variations?



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**101.** Why crows could not eat coloured beetles?



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**102.** what is meant by the term extinction?



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**103.** What is the basis of darwin's theory of evolution?



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**104.** Who proposed the theory of origin of life from abiotic chemicals?



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**105.** Name the scientist who conducted experiments to prove abiotic origin of life?



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**106.** What is genetic drift?



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**107.** Define macroevolution



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**108.** Genetic drift occur in small or large popution



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**109.** What is the structural unit of life?



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**110.** Name a cell without nucleus



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**111.** What is fossil?



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**112.** The species sharing more common characteristics will be close or distant related ?



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**113.** Give the three key factors of the modern concept of evolution?



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**114.** What is the cause of sickle-cell anaemia?



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**115.** Name any fossil animal which serves as connecting link. which two groups does it

connect?



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**116.** What are factors of mendel?



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**117.** What is the modern term given to the factor of mendel?



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**118.** Coin one word for a class of individuals which are morphologically similar



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**119.** Coin the term for the character which does not allow the expression of contrasting character in a hybrid?



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**120.** Coin the term for individual which breed true for its character.



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**121.** What are inherited traits?



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**122.** What is mendel's monohybrid ratio?



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**123.** Write down mendel's monohybrid ratio for phenotypes



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**124.** Write the genotype of man with blood'group 'A'.



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**125.** What are two major functions of DNA?



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**126.** Explain: Speciation.



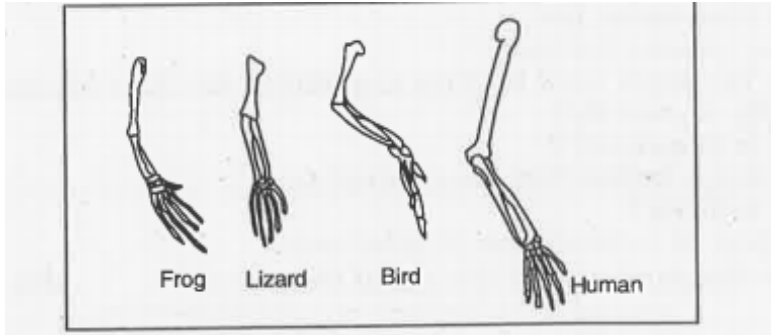
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**127.** What is paleontology?



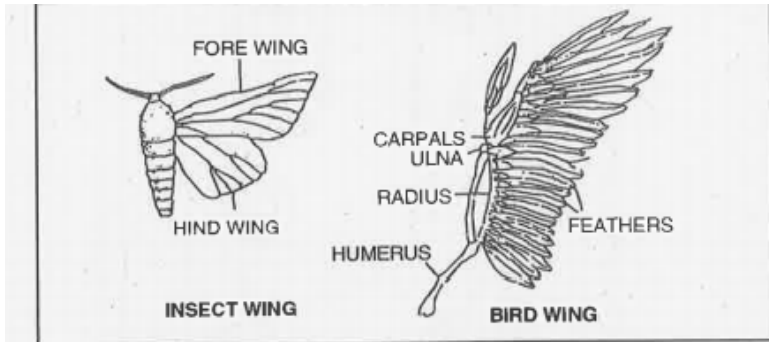
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**128.** What are the kinds of organs shown in the figure?



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129. What are kinds of organ shown in figure?



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130. Write the blood group of progeny P and

Q.

	$I^A$	$I^O$
$I^A$	$I^A I^A$	$I^O I^A$
$I^O$	(P)	(Q)



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**131.** What are vestigial organs?



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**132.** Write any four vestigial organs of human



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**133.** State biogenetic law



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**134.** Name the gases used by urey and miller  
for their experimnt



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**135.** What is biogenesis?



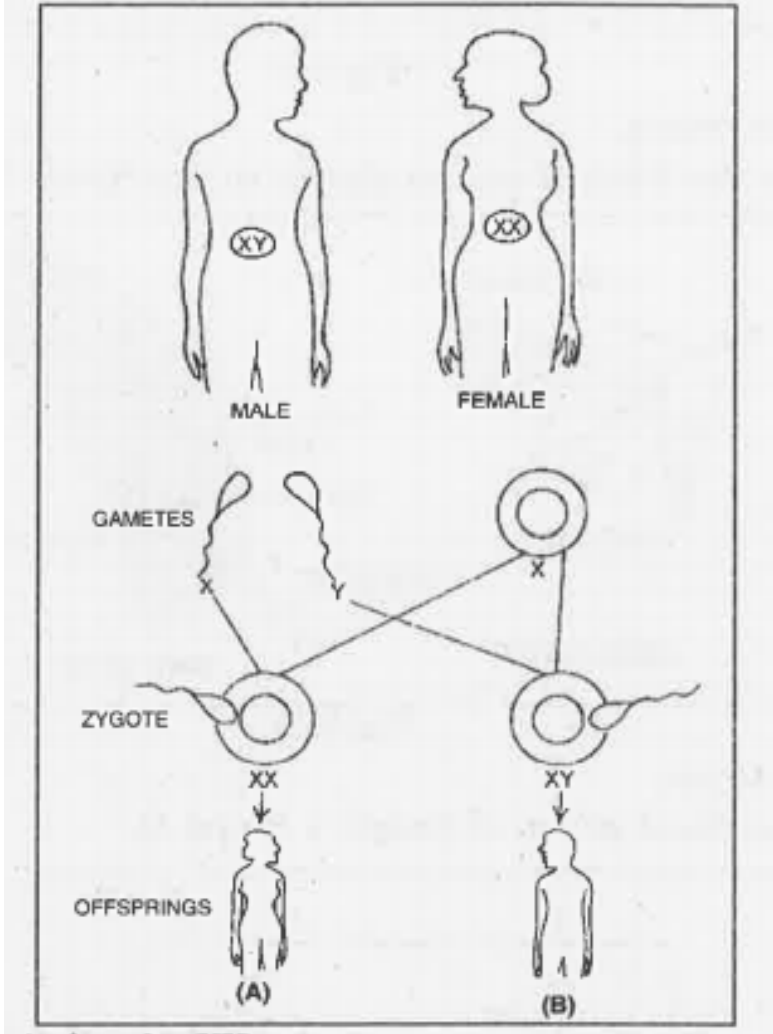
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**136.** What is locus?



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**137.** In the diagram what is the sex of (a) and (b)



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**138.** Branch of biology deals with heredity and variation is called

A. Plaentology

B. evolution

C. genetics

D. ecology

**Answer:**



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

- A. dominant
- B. recessive
- C. determinants
- D. alleles

**Answer:**



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**140.** Two allelic genes are located on

- A. The same chromosome
- B. two homologous chromosomes
- C. Two non-homologous chromosomes
- D. any two chromosomes

**Answer:**



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**141.** Mendel's law of segregation is based on separation of alleles during

- A. gamete formation
- B. seed formation
- C. pollination
- D. embryonic development

**Answer:**



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**142.** The phenotypic ratio in the  $F_2$  generation of a dihybrid cross is :

A. 3 : 1

B. 1 : 2 : 1

C. 2 : 1

D. 9 : 3 : 3 : 1

**Answer:**



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**143.** How many pairs of chromosomes are present in male/female human?

A. XX

B. XYX

C. YXY

D. XY

**Answer:**



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**144.** Who postulated the natural selection as the basis of evolution?

A. darwin

B. haldane

C. lamark

D. newton

**Answer:**



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**145.** How many pairs of chromosomes are present in male/female human?

A. 33

B. 43

C. 23

D. 46

**Answer:**



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**146.** How many years back human has started to grow the wild cabbage as food?

A. 20

B. 200

C. 2000

D. 20000

**Answer:**



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**147.** How the age of fossils is determined

A. radioactive carbon dating

B. DNA

C. gene

D. biological evolution

**Answer:**



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**148.** Fill in the blanks: .....are units of heredity



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**149.** Fill in the blanks: There are.....pairs of chromosomes in human.



**Watch Video Solution**

**150.** Fill in the blanks: Site of gene on a chromosome is called..... .



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**151.** Fill in the blanks: Continuity of life is maintained through.....and..... .



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**152.** Fill in the blanks: Mendel formulated law of purity of gametes on the basis of.... .



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**153.** Fill in the blanks: The composition of fKHOLae sex-chromosomes is.... .



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**154.** Fill in the blanks: Wing of butterfly and wing of birds are examples of..... organs



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