



# BIOLOGY

## NCERT - NCERT BIOLOGY(TELUGU)

### HEREDITY

#### Questions

1. If a trait 'A' exists in 10% of a population of an asexually reproducing species and a trait 'B'

exists in 60% of the same population, which trait is likely to have arisen earlier?



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



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3. What are the different ways in which individuals with a particular trait may increase

in a population?



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4. Why are traits acquired during the lifetime of an individual not inherited?



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5. Why are the small numbers of surviving tigers a cause of worry from the point of view of genetics ?



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6. What factors could lead to rise of a new species?



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



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



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9. Give an example of characteristics being used to determine how close two species are in evolutionary terms.



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



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**11.** What are fossils?



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**12.** Why are human beings who look so different from each other in terms of size, colour and looks said to belong to the same species ?



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**13.** In evolutionary terms , can we say which among bacteria, spiders, fish and chimpanzeshave a 'better' body design? Why or why not ?



## Exercises

1. A Mendelian experiment consisted of breeding tall pea plants bearing violet flowers 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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**2. Give example for homologous organs.**

A. our arm and adog'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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**3.** 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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4. 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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5. How are the areas of study -evolution and classification -interlinked ?



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6. Write a brief note on Homologous and analogous organs.



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7. Which one of the following prussian blue colour ?



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8. Explain the importance of fossils in deciding evolutionary relationships.



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



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



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**11.** How is the equal genetic contribution of male and female parents ensured in the progeny ?



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



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## Exercise

1. What are variations ? How do they help organisms?



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2. 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?





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3. One experimenter cut the tails of parent rats, what could be the traits in offsprings?



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4. In a mango garden a farmer saw one mango tree with full of mango fruits but with a lot of pests. He also saw another mango tree without pests but with few mangoes. But the

farmer wants the mango tree with full of mango fruits and pest free. Is it possible to creatwe new mango tree which the farmer wants? Can you explain how it is possible?



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5. Explain monohybrid experiment with an example. Which law of inheritance can we undrestand? Explain.



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6. State the law of independent assortment.



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7. How does sex determination happen in human?



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8. Explain the Darwin's theory of Natural selection with an example. What do you

understand by the term natural selection ?

Write drwin's theory of evolution.



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9. What are variations? Explain with a suitable example.



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10. What variations generally have you observed in the species of cow?



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11. What are the characters Mendel selected for his experiments on pea plant?



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12. In what way Mendel used the word Traits? Explain using an example.



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**13.** What are the differences that Mendel observed between parent and F2 generation?



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**14.** Male is responsible for sex determination of baby - do you agree ? If so write your answer with a flow chart.



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**15.** Give example for analogous organs.



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**16.** How do scientists utilise the information about fossils?



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**17.** Mendel selected a pea plant for his experiments. Mention the reasons for the

selection of these plants.



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**18.** Who proposed theory of inheritance of acquired characters?



**Watch Video Solution**

**19.** Collect information on the inherited traits in your family members and write a note on it.



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**20.** With the help of vien information write your comment on evidence of evolution. Mammals have forelimbs as do birds, reptiles and amphibians. The basic structure of the limbs is similar, though it has been modified to perform different functiions.



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**21.** Collect information about carbon dating method. Discuss with your physical science teacher.



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**22.** Draw a checker board show the law of independent assortment with a flow chart and explain the ratio



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**23.** Explain the process to understand monohybrid cross of Mendel experiment with a checker board.



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**24.** Nature selects only desirable characters.  
Prepare a cartoon.



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**25.** Prepare a chart showing evolution of man through ages



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**26.** What is your understanding about survival of the fittest ? Give some situations or examples that you observe in your surroundings.



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**27.** Write a monologue on evolution of a man to perform a stage show on the theatre day in your school.



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**28.** How does exhalation takes place?



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**29.** How are new characters produced ?



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**30.** Are they (new characters) inherited ?



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**31.** Do the new characters have any role in the process of evolution?



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**32.** Observe some of your friends and note their characters in the following table. Fill in yours as well. (Q) A. Compare your characters to that of any one of your friend. How many characters did you find were similar among you and your friend?



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**33.** Think of your own family, what similarities do you share with your father and mother?

Draw a table to represent the similarities of some characters like colour of eye (cornea), colour of hair, shape of nose, shape of face, type of earlobe (attached or free) inner thumb markings, etc. Write your characters in one column and that of your parents in the other columns.

(Q). Is there any character in you, similar to that of your mother as well as your grandma?



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**34.** Think of your own family, what similarities do you share with your father and mother? Draw a table to represent the similarities of some characters like colour of eye (cornea), colour of hair, shape of nose, shape of face, type of earlobe (attached or free) inner thumb markings, etc. Write your characters in one column and that of your parents in the other columns.

(Q) where do you think your mother got tat charcter from ?



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**35.** Is variation all about apparent difference ?  
Or is it about some subtle differences as well  
that we most often overlook?



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**36.** How do parent plants pass on their traits  
to the seeds?



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**37.** Will the seeds from tall plants always produce new tall plants?



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**38.** What should be the percentage of each type of plants in F<sub>2</sub> generation produced in dihybrid cross between pea plants with yellow, smooth seeds and green wrinkled seeds?



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**39.** What will happen if sperm containing Y chromosome fertilizes the ovum?



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**40.** Were all your traits similar to that of your parents?



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**41.** Who decides the sex of the baby -mother or father ?



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**42.** Is the sex also a character or trait? Does it follow Mendel's law of dominance?



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**43.** In a forest there are two types of deer, in which one type of deer can run very fast. Whereas second type of deer can not run as fast as the first one. Lions, tigers hunt deer for

their food. Imagine which type of deer is going to survive in the forest, which type of deer population is going to be eliminated? And why?



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**44.** How does the evolution of organisms have taken place?



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**45.** Think why ancient human beings travelled from one place to other and how they travelled.



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**46.** Observe seed in pea or bean pod and answer the following questions. Can you find two similar seeds there?



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**47.** Observe seed in pea or bean pod and answer the following question. What makes them vary?



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**48.** Observe seeds in a pea or bean pod. You may observe several parts to arrive at a generalisation.

(Q) C. Why are variations important? How are variations useful for an organism or a population?





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**49.** Let us do the following activity to understand the mendelian principles of heredity. Materials required:

a. 3cm length and 1 cm breadth chart pieces -4

b. 2 cm length and 1 cm breadth chart pieces

-4

c. Red buttons -4

d. white buttons -4

e. chart, scale, sketch pen pencil, 2 bags.

Method: Prepare a chart with 2x2 boxes along

with number and symbol as shown in the figure.

Game 1: Monohybrid cross (starting with hybrid parents) To start with take 1,2 or 3,4 . In case you start 1,2 pick all the 16 long and short pieces and prepare such pairs in each of which you have a long and short piece. Take 4 pairs each of long and short strips and put them in two separate bags. Now each bag contains 8 strips (4 long and 4 short). One bag say 'A' represents male and the bag 'B' represents female . Now randomly pick one strip each from bag A and B and put them together in

the 1 on the chart. Keep picking out the strips and arrange them in the same manner till your bags are empty. Same time your boxes in the chart are filled with paris of strips. you might have got the following combinations, two long strips, one long and one short strip, two short strips.

(Q) A. what is the number of long strip paris?



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**50.** Let us do the following activity to understand the mendelian principles of heredity. Materials required:

a. 3cm length and 1 cm breadth chart pieces -4

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bags are empty. Same time your boxes in the chart are filled with pairs of strips. you might have got the following combinations, two long strips, one long and one short strip, two short strips.

(Q) E. What can you conclude from this game?



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**51.** Let us do the following activity to understand the mendelian principles of heredity. Materials required:

- a. 3cm length and 1 cm breadth chart pieces -4
- b. 2 cm length and 1 cm breadth chart pieces -4
- c. Red buttons -4
- d. white buttons -4
- e. chart, scale, sketch pen pencil, 2 bags.

Method: Prepare a chart with 2x2 boxes along with number and symbol as shown in the figure.

Game 1: Monohybrid cross (starting with hybrid parents) To start with take 1,2 or 3,4 . In case you start 1,2 pick all the 16 long and short pieces and prepare such pairs in each of which

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strips.

(Q) C. What is the number of short strip pairs?



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**52.** Describe an activity to understand the Mendelian principal of Hereditary. What is the percentage of each type ? Also find their rations.



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**53.** Let us do the following activity to understand the mendelian principles of heredity. Materials required:

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b. 2 cm length and 1 cm breadth chart pieces

-4

c. Red buttons -4

d. white buttons -4

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bags are empty. Same time your boxes in the chart are filled with pairs of strips. you might have got the following combinations, two long strips, one long and one short strip, two short strips.

(Q) E. What can you conclude from this game?



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**54.** Does the life history of every individual exhibit the structural features of its ancestors?



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**55.** What are variations ? How do they help organisms?



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**56.** What is F1 generation?



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**57. What is F2 generation?**



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**58. What is F3 generation**



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**59. What is phenotype ratio?**



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**60.** What is genotype ratio ?



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**61.** State the law of independent assortment.



**Watch Video Solution**

**62.** What are genes?



**Watch Video Solution**

**63.** What is allele?



**Watch Video Solution**

**64.** What are homozygous alleles?



**Watch Video Solution**

**65.** What is heterozygous allele?



**Watch Video Solution**



**66.** What is law of dominance?



**Watch Video Solution**

**67.** State the law of segregation.



**Watch Video Solution**

**68.** What are inherited traits?



**Watch Video Solution**

**69.** What is heredity?



**Watch Video Solution**

**70.** What is inheritance?



**Watch Video Solution**

**71.** What are autosomes?



**Watch Video Solution**

72. What are allosomes?



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73. what is genetic drift? Explain how it provides diversity in the population. ?



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74. What are acquired characters ?



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75. what is inheritance of acquired characters?



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76. What is meant by survival of the fittest?



[Watch Video Solution](#)

77. What is meant by survival of the fittest?



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**78.** What is micro evolution?



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**79.** What is macro evolution or speciation?



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**80.** Homologous organs explain



**Watch Video Solution**

**81.** Give example for analogous organs.



**Watch Video Solution**

**82.** What is embryology?



**Watch Video Solution**

**83.** What are fossils?



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**84.** What is palaeontology?



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**85.** What is the method used to determine the age of the fossil ?



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**86.** What is human evolution?



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**87.** Why variations are important ? How are variations useful for an organism or a population?



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**88.** Which one of the following options gives one correct example each of convergent



evolution and divergent evolution?

Convergent evolution    Divergent evolution



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89. What is convergent evolution?



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90. what are vestigial organs?



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**91.** indentify the scientist. He was the first person to propose the theory of evolution. He took girffee to explain his theory.



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**92.** Who proposed theory of inhertitance of acquired characters?



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**93.** Who proved that bodily changes are not inherited?



**Watch Video Solution**

**94.** Who proposed the theory of natural selection?



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**95.** What does the theory of natural selection state?



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**96.** How many vestigial organs are present in man



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**97.** Give an example for vestigial organ in our body.



**Watch Video Solution**

**98.** Why man is called a moving museum of vestigial organs?



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**99.** Why are traits acquired during the lifetime of an individual not inherited?



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**100.** What factors could lead to rise of a new species?



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**101.** A normal plant bearing coloured flowers suddenly start producing white flowers. What could be the possible cause?



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



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**103.** If the sperm bearing 'Y' chromosome fertilizes the egg, the child born will not be entirely like his father, why is it so?



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**104.** Recent fossils are found closer to the earth's surface. Comment on the statement showing reason.



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**105.** With the help of vien information write your comment on evidence of evolution. Mammals have forelimbs as do birds, reptiles and amphibians. The basic structure of the limbs is similar, though it has been modified to perform different functiions.



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**106.** Name the chemicals which were essential for origin of species.



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**107.** Which of the following statements is not true? Write it.

1. Malthus theory was written in An essay on the principles of population.

ii. The orgini of species was written by charles Lyell.

iii. The theory of Natural selection was proposed by charles Darwin.

iv. jean Baptist lamark proposed a theory of inheritance of acquired characters.



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**108.** A man with blood group 'A' marries a woman with blood group 'O' and their daughter has blood group 'O'. Is this information enough to tell you which of the traits blood group 'A' or 'O' is dominant? Why or why not?



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**109.** Read the table and answer the questions:

S.No.	Name of the base	Use
1.	Ammonium Hydroxide	For removal of greeze stains.
2.	Sodium Hydroxide	Manufacturing of soaps.
3.	Calcium Hydroxide	Bleaching powder industry.
4.	Aluminium Hydroxide	Used as fire extinguisher.



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**110.** What is the phenotypic ratio in F1 generation of a Mendel's monohybrid cross?



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**111.** Give example for homologous organs.



**Watch Video Solution**

**112.** Give example for analogous organs.



**Watch Video Solution**

**113.** Why are traits acquired during the lifetime of an individual not inherited?



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**114.** In evolutionary terms , can we say which among bacteria, spiders, fish and chimpanzeshave a 'better' body design? Why or why not ?



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**115.** State the law of independent assortment.



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**116.** Write about Lamarkism.



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**117.** Why are the small numbers of surviving tigers a cause of worry from the point of view of genetics ?



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**118.** What do you understand about pure breeds ?



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**119.** Write main differences between  $F_1$  Generation  $F_2$  Generation.



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**120.** What are the differences between monohybrid cross and dihybrid cross?



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



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**122.** What factors could lead to rise of a new species?



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**123.** Offspring formed by sexual reproduction exhibit more variation than those formed by asexual reproduction because



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**124.** What provides the evidences for the evolution?



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**125.** What is natural selection ? How does it direct the evolution ? Explain with an example.



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**126.** what is genetic drift? Explain how it provides diversity in the population. ?



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**127.** Write the Darwin's theory of evolution in a nutshell?



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**128.** How would you appreciate Grego Johann Mendel's contribution to the genetics?



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**129.** How would you appreciate charles Robert Darwin for his work on evolution?



**Watch Video Solution**

**130.** What provides the evidences for the evolution?



**Watch Video Solution**

**131.** Why are human beings who look so different from each other in terms of size, colour and looks said to belong to the same species ?



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**132.** The process in which the transmission of traits from one generation to another is called..

A. Inheritance

B. Mutations

C. Diversity

D. Environment

**Answer:**



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**133.** According to Weismann's prediction, every organism undergoes two kinds of cell divisions. In mitosis, there is no change in chromosomal number ( $2n$ ) and in Meiosis, chromosomal number is reduced to half ( $n$ ).

(iv) Which type of cell division occurs in the skin cells ?

A. Testes

B. Ovaries

C. Both A and B

D. All body cells



**Answer:**



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**134.** The human species has gentic roots in

A. America

B. Africa

C. Australia

D. Antarctica

**Answer:**



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135. Which of the following gas was not present in early earth atmosphere ?

A. Oxygen

B.  $CO_2$

C.  $N_2$

D. Methane

**Answer:**



**136.** Scientists believe that life is originated in

- A. The soil
- B. The ground
- C. The hills
- D. The sea

**Answer:**



**137.** Father of human genetics is

A. Mendel

B. Morgan

C. Darwin

D. Wallace

**Answer:**



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**138.** One of the following traits can not be inherited

- A. Colour of eyes
- B. Colour of skin
- C. Size of the body
- D. Nature of hair

**Answer:**



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**139.** Wing of an insect and the wing of a bird are

- A. Analogous organs
- B. Homologous organs
- C. Analeptic organs
- D. Homophobic organs

**Answer:**



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**140.** Wings of butterfly and that of birds are good examples of

- A. Analogous organs
- B. Respiratory organs
- C. Vestigial organs
- D. Homologus organs

**Answer:**



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**141.** One of the following traits of the parents cannot be passed on to their future generations. This trait is

- A. Cleft chin
- B. Pointed chin
- C. Scarred chin
- D. Broad chin

**Answer:**



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**142.** The science of heredity is known as

- A. Embryology
- B. Genetics
- C. Palaeobotany
- D. Zoo geography

**Answer:**



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**143.** The human animal which has an XY pair of chromosomes is called

A. Hybrid

B. Female

C. Male

D. Doomed

**Answer:**



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**144.** When two parents are crossed the offsprings are referred to as

- A. Recessives
- B. Tests cross
- C. F1 generation
- D. F2 generation

**Answer:**



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**145.** A cross between two individuals results in a ratio of 9:3:3:1 for four possible phenotypes of progeny this is an example of

- A. Dihybrid cross
- B. Monohybrid cross
- C. Test cross
- D. None

**Answer:**



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**146.** 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. 0.04375

B. 0.125694444444444

C. 0.084027777777778

D. 0.042361111111111

**Answer:**



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**147.** In human males, all the chromosomes are paired perfectly except one that is

- A. X chromosomes
- B. Y chromosome
- C. Small chromosome
- D. A and B

**Answer:**



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**148.** What are the characters Mendel selected for his experiments on pea plant?

- A. Rose plants
- B. Been Plants
- C. Pea plants
- D. Mango trees

**Answer:**



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

A. 3

B. 5

C. 7

D. 9

**Answer:**



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150. A zygote which has inherited an 'X' chromosome from the father will develop into

A. Baby girl

B. Baby Boy

C. Adult

D. None

**Answer:**



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**151.** Who is called the father of genetics?

A. Mendel

B. Watson

C. Lamarck

D. Darwin

**Answer:**



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**152.** What is F1 generation?

A. Dominant

B. Recessive

C. Both

D. None of these

**Answer:**



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**153.** What is the percentage of plants that exhibit dominant character in F<sub>2</sub> generation?

A. 1

B. 0.25

C. 0.5

D. 0.75

**Answer:**



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**154.** The phenotype means.....

A. Externally visible characters

B. Internal characters

C. Changing characters

D. New characters

**Answer:**



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**155.** How many characters are responsible for producing a particular character or trait, according to Mendel?

A. 1

B. 2

C. 3

D. 4

**Answer:**



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**156.** if both the alleles are same for a character, this condition is said to be

A. Heterozygous

B. homozygous

C. Mixed

D. None of these

**Answer:**



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**157.** If the alleles are different for a character, then this condition is said to be ?

A. Heterozygous

B. homozygous

C. Opposite

D. None of these

**Answer:**



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**158.** indentify the mismatched pair.

1. Phenotypic ratio of F2 generation -1:2:1



2 Genotypic ratio of F2 generation -3:1

3. Phenotypic ratio of dihybrid cross-9:3:3:1

A. 0.04306712962963

B. 0.167361111111111

C. 0.125694444444444

D. 0.043761574074074

**Answer:**



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**159.** What is the genotypic ratio of monohybrid cross?

A. 0.04306712962963

B. 0.16736111111111

C. 0.12569444444444

D. 0.043761574074074

**Answer:**



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**160.** One of the allele is dominant over other  
which law of mendel explain this?

- A. Law of segregation
- B. Law of independent assortment
- C. Law dominense
- D. Law of natural selection

**Answer:**



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**161.** Each parent passes a randomly selected copy of only one of the allele to an offspring  
which law of Mendel explains this?

- A. Law of natural selection
- B. Law of dominance
- C. Law of independent assortment
- D. Law of segregation

**Answer:**



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

A. Watson

B. Lamarck

C. Mendel

D. Darwin

**Answer:**



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**163.** The process of transmission of parental characters to the offspring is

A. Transmission

B. Heredity

C. Traits

D. Pass on

**Answer:**



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**164.** Factors or alleles of Mendel are now known as ....

A. DNA

B. RNA

C. Genes

D. Nucleic acid

**Answer:**



**Watch Video Solution**

**165.** How many number of pairs of autosomes are present in humans?

A. 23

B. 1

C. 2

D. 22

**Answer:**



**Watch Video Solution**



**166.** How many number of pairs of allosomes are present in humans?

A. 23

B. 1

C. 2

D. 22

**Answer:**



**Watch Video Solution**

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

A. XX

B. XY

C. XZ

D. YY

**Answer:**



**Watch Video Solution**

**168.** What will happen if sperm containing X chromosome fertilizes the ovum?

A. Boy

B. Girl

C. Can not be decided

D. Trans gender

**Answer:**



**Watch Video Solution**

**169.** What is the number of chromosomes in human beings?

A. 20

B. 21

C. 22

D. 23

**Answer:**



**Watch Video Solution**

170. chromosomes whose number and morphology do not differ between males and females of a species are called....

A. Allosomes

B. Autosomes

C. Homosomes

D. Heterosomes

**Answer:**



**Watch Video Solution**

171. What will happen if sperm containing Y chromosome fertilizes the ovum?

- A. Boy
- B. Girl
- C. Can not be decided
- D. Transgender

**Answer:**



**Watch Video Solution**

172. Variations in offspring are caused by .

- A. Sexual reproduction
- B. Asexual reproduction
- C. Erroes in DNA coping
- D. Both A and C

**Answer:**



**Watch Video Solution**

**173.** identify the mis-matched pairs

1. allosomes in males-xx
2. Allosomes in females-xy
3. factors- Genes

A. XX

B. XY

C. ZX

D. YY

**Answer:**



Watch Video Solution



**174.** Gamets produced by woman have

- A. Only X chromosomes
- B. Only y chromosomes
- C. Both X and Y chromosomes
- D. Any one of the x or Y chromosomes

**Answer:**



**Watch Video Solution**

175. gamets prodused by man have

- A. Only X chromosomes
- B. Only y chromosomes
- C. Both X and Y chromosomes
- D. Any one of the x or Y chromosomes

**Answer:**



**Watch Video Solution**

**176.** Which of the following is a inherited trait ?

A. Low weight due to starvation

B. Loss of body parts in accident

C. Height of the individual

D. Body growth due to exercise

**Answer:**



**Watch Video Solution**

177. Identify the scientist. He was the first person to propose the theory of evolution. He took giraffe to explain his theory.

A. Mendel

B. Darwin

C. Lamarck

D. Weismann

**Answer:**



**Watch Video Solution**

**178.** How would you appreciate Jean Baptist Lamarck for his contribution to the biology?

- A. Malthus theory
- B. Natural selection
- C. Inheritance of acquired characters
- D. Survival of the fittest

**Answer:**



**Watch Video Solution**

**179.** In the world survey ship, Darwin travelled a number of places. Name the ship in which he travelled.

A. Titanic

B. HMS eagle

C. HBS beagle

D. HMS beagle

**Answer:**



**Watch Video Solution**

**180.** Darwin finches are found in

A. Galapagos island

B. Indonesian island

C. Andoman islands

D. Maldives

**Answer:**



**Watch Video Solution**

**181.** Who wrote the book 'Principles of Geology'?

A. Charles Lyell

B. Charles Darwin

C. Jean-Baptiste Lamarck

D. Malthus

**Answer:**



**Watch Video Solution**



**182.** The scientist who disproved the theory of inheritance of acquired characters.

A. Lamarck

B. Weismann

C. Darwin

D. Mendel

**Answer:**



**Watch Video Solution**

**183.** Augustus Wesemann conducted his experiments on

A. Cats

B. Rats

C. Dogs

D. Giraffe

**Answer:**



**Watch Video Solution**

**184.** Who proposed the theory of natural selection?

A. Lamarck

B. Weismann

C. Darwin

D. Mendel

**Answer:**



**Watch Video Solution**

**185.** Which of the following statements is not true? Write it.

1. Malthus theory was written in An essay on the principles of population.

ii. The orgini of species was written by charles Lyell.

iii. The theory of Natural selection was proposed by charles Darwin.

iv. jean Baptist lamark proposed a theory of inheritance of acquired characters.

A. The origin of species

B. Journal of lynnæan society

C. An essay on the principals of  
populations

D. Pricipals of geology

**Answer:**



**Watch Video Solution**

**186.** Who concluded that natural selection contributed to arising of new species?

A. Linneaus

B. Alfred Russel

C. Lamarck

D. Augusts Weismann

**Answer:**



**Watch Video Solution**

**187.** Read the sentence, find the error and rewrite it. The origin of species was written by A.R Wallace.

A. Chales Iyell

B. Charles Darwin

C. Jean bapist Lamarck

D. Malthus

**Answer:**



**Watch Video Solution**

**188.** Wing of bat and wing of birds are the example for

A. Homologous organs

B. Analogous organs

C. Vestigial organs

D. All the above

**Answer:**



**Watch Video Solution**

**189.** Wing of bat and wing of birds are the example for



A. Homologous organs

B. Analogous organs

C. Vestigial organs

D. None of these

**Answer:**



**Watch Video Solution**

**190.** what is the study of the development of an organism from egg to adult stage?

A. Embryology

B. Paleontology

C. Geology

D. Zoology

**Answer:**



**Watch Video Solution**

**191.** What is the study of fossils called?

A. Embryology

B. Paleontology

C. Ecology

D. Anatomy

**Answer:**



**Watch Video Solution**

**192.** What is the method used to determine the age of the fossil ?

A. Hydrogen dating

B. Nitrogen dating

C. Oxygen dating

D. Carbon dating

**Answer:**



**Watch Video Solution**

**193.** When did early human like form appear on the earth?

A. 750000

B. 250000

C. 150000

D. 50000

**Answer:**



**Watch Video Solution**

**194.** Homo sapiens appeared about years ago

A. 1.8 million

B. 40000

C. 300000

D. 2.5 million

**Answer:**



**Watch Video Solution**

**195.** "All human beings came from Africa"-

Explain.

A. America

B. Asia

C. Africa

D. Australia

**Answer:**



**Watch Video Solution**

**196.** Organs which are not useful to the organisms are called

A. Homologous organs

B. Analogous organs

C. Vestigial organs

D. Digestive organs

**Answer:**



**Watch Video Solution**

**197.** complete the blanks. So metimes, vestigial organs are abruptly appear even in human beings. This phenomenon is called ....(1) Eg: baby with a tail. There are .... (2) vestigial organs in human beings.



A. 110

B. 1

C. 180

D. 7

**Answer:**



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**198.** Which one is not a vestigial organ in man?

A. Pinna

B. Hair on skin

C. Thumb

D. Appendix

**Answer:**



**Watch Video Solution**

**199.** The process of acquiring character or trait is called .....

A. Adaptation

B. Evolution

C. Heredity

D. Mutation

**Answer:**



**Watch Video Solution**

**200.** Explain the process to understand monohybrid cross of Mendel experiment with a checker board.

A. Heredity

B. Variations

C. Evolution

D. Mutation

**Answer:**



**Watch Video Solution**

**201.** the four characters observed in the experiments on law of independent assortment are .....

A. Round and yellow

B. Wrinkled and green

C. wrinkled and yellow

D. A and B only

**Answer:**



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**202.** TT or Yy, Tt or Yy are responsible for a ..... character.

A. Recessive

B. Aggressive

C. dominant

D. Independent

**Answer:**



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**203.** Female baby having 23 pairs of autosomes at the age of 18 years, has how

many pairs of autosomes and of sex chromosomes?

A. 22 pairs of autosomes and 1 pair of sex chromosomes

B. 20 pairs of autosomes and 3 pair of sex chromosomes

C. 22 pairs of sex chromosomes and 1 pair of autosomes

D. 20 pairs of sex chromosomes and 3 pair of autosomes

**Answer:**



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**204.** A goat which walks properly can't live for a long time. According to darwin, this represents .....

- A. Natural selection
- B. Inheritance of acquired characters
- C. Survival of fittest
- D. All the above



**Answer:**



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**205.** forelimb of whale is for swimming  
whereas in horse it is used for .....

A. Running

B. Walking

C. Jumping

D. All the above

**Answer:**



**Watch Video Solution**

**206.** Variation in organisms occur due to

A. Difference in characters within very closely related groups of organisms

B. Similarities in characters within very closely related groups of organisms

C. Difference in characters within non related groups of organisms

D. Similarities in characters within non related groups of organisms

**Answer:**



**Watch Video Solution**

**207.** In pea plants, 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 plants would you expected in  $F_1$  generation?

A. Yellow

B. Green

C. Mixed colour seeds

D. 75 % yellow 25 % green

**Answer:**



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**208.** State the law of segregation.

- A. One of the allele is dominant over other
- B. One of the allele is dominant over other
- C. The factors for each pair of characters  
assorted independently of the other pair
- D. The factors of each pair f characters will  
pass from parents to off springs

**Answer:**



**Watch Video Solution**

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

A. Transmission of characters from parents  
to offspring

B. Transmission of characters for off spring  
to parents

C. Transmission of characters from male  
parents to off springs

D. Transmission of characters from female  
parents to off springs

**Answer:**



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**210.** What is the genotypic ratio of monohybrid cross?

A. 0.125694444444444

B. 0.04306712962963

C. 9:3:3:1

D. 0.04375

**Answer:**



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**211. What is F1 generation?**

- A. Recessive
- B. Expressive
- C. Dominant
- D. All of the above

**Answer:**





Watch Video Solution

212. What is the phenotypic ratio of dihybrid cross?

A. 0.125694444444444

B. 0.04306712962963

C. 0.04375

D. 9:3:3:1

**Answer:**



**213.** The process in which the transmission of traits from one generation to another is called..

- A. Variations
- B. Inheritance
- C. Genetic drift
- D. None of the above

**Answer:**



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214. Who hypothesised that each character is expressed due to a pair of factors or alleles.

A. Lamarck

B. Weismann

C. Mendel

D. Malthus

**Answer:**



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**215.** Segments of deoxyribonucleic acid are called

A. factors

B. Characters

C. Traits

D. Genes

**Answer:**



**Watch Video Solution**

**216.** The expression of trait and character are controlled by

A. genes

B. Factors

C. Both genes and factors

D. None

**Answer:**



**Watch Video Solution**

217. What is the number of chromosomes in human beings?

A. 44

B. 46

C. 42

D. 40

**Answer:**



**Watch Video Solution**

**218.** chromosomes whose number and morphology do not differ between males and females of a species are called....

A. Autosomes

B. Allosomes

C. Mesosomes

D. Centrosomes

**Answer:**



**Watch Video Solution**

**219.** Who decides the sex of the baby -mother or father ?

A. The sperm carries Y chromosomes  
fertilizers the ovum

B. The sperm carries X chromosomes  
fertilizers the ovum

C. The sperm carries Y chromosomes  
fertilizers the ovum with Y chromosomes

D. The sperm fertilizers the ovum



**Answer:**



**Watch Video Solution**

**220.** Variation in organisms occur due to

- A. Genetic drift
- B. Genetic recombination
- C. Mutation
- D. All of the above

**Answer:**



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221. What do you call the changes in the frequency of genes in small populations?

- A. Genetic drift
- B. Crossing over
- C. Mutation
- D. Genetic recombination

**Answer:**



222. One of the following traits of the parents cannot be passed on to their future generations. This trait is

- A. Reproductive tissue
- B. Non reproductive tissue
- C. Non somatic tissue
- D. All the above

**Answer:**



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223. What are acquired characters ?

A. Developed during life time of an organism

B. That comes from birth

C. That are present in fore farher

D. Present in f1 generation off springs

**Answer:**



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224. Who proved that bodily changes are not inherited?

- A. Passed to its off springs
- B. Won't be passed to its off springs
- C. Passed to its f2 generation off springs
- D. Non of the above

**Answer:**



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**225.** Who felt that large changes occurred due to accumulation of small changes?

A. Charles Darwin

B. Lamarck

C. Weismann

D. Charles Lyell

**Answer:**



**Watch Video Solution**

**226.** We are structurally different but functionally similar. Who are we?

- A. Vestigial organs
- B. Homologous organs
- C. Analogous organs
- D. Judiciary organs

**Answer:**



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227. complete the blanks. Homologous organs are examples for .....(1) type of evolution. Analogous organs are examples for .....(2) type of evolution.

- A. Divergent evolution
- B. Convergent evolution
- C. Resurgent evolutions
- D. Recessive evolution

**Answer:**



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**228.** Name the evidences of ancient life forms which have been preserved by natural processes.

A. Vestigial organs

B. Measles

C. Fossils

D. All the above

**Answer:**



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**229.** what did charles darwin observe in Galapagos islands?

A. Parrots

B. Doves

C. Eagles

D. Finch birds

**Answer:**



**Watch Video Solution**

230. Who wrote the book 'Principles of Geology'?

A. August Weismann

B. Lamarck

C. Charles Lyell

D. Haeckel

**Answer:**



**Watch Video Solution**

**231.** According to Darwin during the struggle for existence, these organisms alone will survive

- A. Natural selection
- B. Survival of fittest
- C. Law of segregation
- D. Law of dominance

**Answer:**



**Watch Video Solution**

**232.** What is macro evolution or speciation?

- A. The process of species formation
- B. The processes of genes formation
- C. The process of formation of family
- D. The processes of formation of order

**Answer:**



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**233.** Forelimb of bat is for flying whereas in mole it is used for

A. Digging

B. Cutting

C. Chewing

D. Jumping

**Answer:**



**Watch Video Solution**

**234.** Organs that are common in embryonic origin and have the same fundamental structure but perform different functions are called

A. Heterogonous organs

B. Homologous organs

C. Vestigial organs

D. Digestive organs

**Answer:**



**Watch Video Solution**

**235.** Who concluded that natural selection contributed to arising of new species?

A. Alfred Russel Wallace

B. August Weismann

C. Jean Baptist Lamarck

D. Malthus

**Answer:**



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**236.** What do you name the small changes within the species?

A. Macro evolution

B. Eco evolution

C. Micro evolution

D. Bio evolution

**Answer:**



**Watch Video Solution**

**237.** Homologous organs explain

- A. Divergent evolution
- B. Convergent evolution
- C. Resurgent evolution
- D. Recessive evolution

**Answer:**



**Watch Video Solution**

**238.** A trait in an off springs is influenced by

A. DNA of mother gamete

B. DNA of father gamete

C. Both DNA s of mother and father  
gamete

D. Neither of mother or father gamete of  
DNA

**Answer:**



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239. 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. 0.25

B. 0.4

C. 0.6

D. 0.75

**Answer:**



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**240.** Carbon dating is related to

- A. Fossils
- B. Living animals
- C. Dead animals
- D. Human being

**Answer:**



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**241.** Name the structure of gut which is vestigial in human beings, but well developed in herbivores. And mention the type of tissue with which it is mostly formed.

A. Monkey

B. Rabbit

C. Crocodile

D. Alligator

**Answer:**



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242. Who is called as moving museum of vestigial organs'?

A. Human being

B. Monkey

C. Elephant

D. Tiger

**Answer:**



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**243.** what is genetic drift? Explain how it provides diversity in the population. ?

- A. Evolution in the population
- B. Diversity in population
- C. Convergency in the population
- D. None of the above

**Answer:**



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**244.** According to Darwin, if new variations are to be inherited they should be:

- A. Somatic variations
- B. Germinal variation
- C. Both somatic and germinal variations
- D. None

**Answer:**



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245. How did Augustus Weismann disprove the theory of Inheritance of acquired character proposed by Lamarck ?

A. Lamarck

B. Darwin

C. Weismann

D. Mendel

**Answer:**



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**246.** Elongation of neck and fore limb in giraffe is an example for

- A. Survival of fittest
- B. Inheritance of acquired
- C. Natural selection
- D. All the above

**Answer:**



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247. Who tested the theory of inheritance of acquired characters by his experiments on rats for 22 generations?

- A. Darwin
- B. Hugo de vries
- C. August Weismann
- D. virchow

**Answer:**



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1. what is inheritance of acquired characters?

- A. Brown hair
- B. Fair skin
- C. Strong muscles
- D. Long nose

**Answer:**



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2. Mendel selected a pea plant for his experiments. Mention the reasons for the selection of these plants.

A. Pea

B. Bean

C. Mustard

D. Paddy

**Answer:**



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3. Why is Mendel considered as the father of Genetics ?

A. Charles Darwin

B. Lamarck

C. Mendel

D. Watson

**Answer:**



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4. What is the percentage of plants that exhibit dominant character in F<sub>2</sub> generation?

A. 0.0423611111111111

B. 0.04375

C. 0.0444444444444444

D. 0.1256944444444444

**Answer:**



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5. In  $nl^x$  method, how many quantum numbers are there ?

A. 12

B. 23

C. 46

D. 48

**Answer:**



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6. Which of the following is the key feature for the member of the species?

- A. Similar size
- B. Similar appearance
- C. Same genotype
- D. Ability to interbreed

**Answer:**



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7. Fill in the blanks: In F1 generation, the phenotypic ratio is \_\_\_\_\_.



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8. Fill in the blanks

.....are the sites of photosynthesis.



**Watch Video Solution**

9. What is F1 generation?



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**10.** Write a short note on the law of "inheritance of acquired characters".



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**11.** The process in which the transmission of traits from one generation to another is called..



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12. DNA or RNA segment tagged with a radioactive molecular is called



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13. Fill in the blanks: The process of passing on the traits from parent to progeny is called

\_\_\_\_\_.



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**14.** The expression of trait and character are controlled by



**Watch Video Solution**

**15.** Double helical model of DNA was proposed by



**Watch Video Solution**

**16.** Which chromosomes determine the sex in human beings?



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17. How many number of pairs of autosomes are present in humans?



[Watch Video Solution](#)

18. Fill in the blanks: Sperms and ova are called \_\_\_\_\_.



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19. Who proposed theory of inheritance of acquired characters?



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20. Fill in the blanks: Theory of natural selection was explained by \_\_\_\_\_.



**Watch Video Solution**



21. Which of the following statements is not true? Write it.

1. Malthus theory was written in An essay on the principles of population.

ii. The orgini of species was written by charles Lyell.

iii. The theory of Natural selection was proposed by charles Darwin.

iv. jean Baptist lamark proposed a theory of inheritance of acquired characters.



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**22.** Wing of an insect and the wing of a bird are



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**23.** Fill in the blanks: Wings of bat and wings of other birds are \_\_\_\_\_ organs.



**Watch Video Solution**

**24.** Write a brief note on Homologous and analogous organs.



**Watch Video Solution**

**25.** What is the study of the development of an organism from egg to adult stage?



**Watch Video Solution**

**26.** Fossils are the precious evidences preserved by the nature to help us knowing about ancient life forms. Write the information you collected about fossils.



**Watch Video Solution**

**27.** What is the study of fossils called?



**Watch Video Solution**

**28.** Fossil man who recent in human evolution ?



**Watch Video Solution**

**29.** The human animal which has an XY pair of chromosomes is called



**Watch Video Solution**

**30.** Meiosis occurs during



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## Think And Discuss

1. In a forest there are two types of deers, in which one type of deer can run very fast. Where as second type of deer can not run as fast as the first one. Lions, Tigers hunt deers for their food. Imagine which type of deers are going to survive in the forest and which type of deers population is going to be eliminated? And why?



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2. In a forest there are two types of deers, in which one type of deer can run very fast. Where as second type of deer can not run as fast as the first one. Lions, Tigers hunt deers for their food. Imagine which type of deers are going to survive in the forest and which type of deers population is going to be eliminated? And why?



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## Improve Your Learning

1. What are variations? How do they help organisms?



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2. One student (researcher) wants to cross pure tall plant (TT) with pure dwarf (tt) plant, what would be the F1 and F2 generations? Explain.



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3. One experimenter cut the tails of parent rats , what could be the the traits in offsprings? Do the daughter rats contain tails or not? Explain your argument.



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4. In a mango garden a farmer saw one mango tree with full of mango fruits but with a lot of pests. He also saw another mango tree

without pests but with few mangoes. But the farmer wants the mango tree with full of mango fruits and pest free. Is it possible to create new mango tree which the farmer wants? Can you explain how it is possible?



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5. Explain monohybrid experiment with an example, which law of inheritance can we understand? Explain.



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6. What is the law of independent assortment?

Explain with an example?



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7. Explain the Darwin's theory of evolution

'Natural selection' with an example?



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**8.** What are variations? Explain with a suitable example.



**Watch Video Solution**

**9.** What variations generally have you observed in the species of cow?



**Watch Video Solution**

**10.** What are the characters Mendel selected for his experiments on pea plant?



**Watch Video Solution**

**11.** In what way Mendel used the word 'Traits'- explain with an example.



**Watch Video Solution**

**12.** What differences Mendel identified between parent and  $F_2$  generation.



**Watch Video Solution**

**13.** Male is responsible for sex determination of baby - do you agree ? If so write your answer with a flow chart.



**Watch Video Solution**

**14.** Write a brief note on analogous organs.



**Watch Video Solution**

**15.** How do scientists utilise the information about fossils?



**Watch Video Solution**

**16.** Mendel selected a pea plant for his experiments. Mention the reasons in your

point of view.



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**17.** If the theory of inheritance of acquired characters proposed by Lamarck was true how will the world be?



[Watch Video Solution](#)

**18.** Collect information on the inherited traits in your family members and write a note on it.





[Watch Video Solution](#)

**19.** Observe flowering plants in your surroundings? Write similarities and differences between them.



[Watch Video Solution](#)

**20.** With the help of given information write your comment on evidences of evolution.

Mammals have four limbs as do birds, reptiles

and amphibians. The basic structure of the limbs is similar, though it has been modified to perform different functions.



**Watch Video Solution**

**21.** Collect information about carbon dating method. Discuss with your physical science teacher.



**Watch Video Solution**

**22.** Draw a checker board show the law of independent assortment with a flow chart and explain the ratio.



**Watch Video Solution**

**23.** Explain the process to understand monohybrid cross of Mendel experiment with a checker board.



**Watch Video Solution**

**24.** Prepare a flow chart showing evolution of man through ages.



**Watch Video Solution**

**25.** Nature selects only desirable characters.  
Prepare a cartoon.



**Watch Video Solution**

**26.** What is your understanding about survival of the fittest. Give some situations or examples that you observe in your surroundings?



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**27.** Write a monologue on evolution of a man to perform a stage show on the theatre day in your school.



**Watch Video Solution**

**28.** What are variations? How do they help organisms?



**Watch Video Solution**

**29.** One student (researcher) wants to cross pure tall plant (TT) with pure dwarf (tt) plant, what would be the F1 and F2 generations? Explain.



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**30.** One experimenter cut the tails of parent rats , what could be the the traits in offsprings? Do the daughter rats contain tails or not? Explain your argument.



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farmer wants the mango tree with full of mango fruits and pest free. Is it possible to create new mango tree which the farmer wants? Can you explain how it is possible?



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**32.** Explain monohybrid experiment with an example, which law of inheritance can we understand? Explain.



[Watch Video Solution](#)



**33.** What is the law of independent assortment? Explain with an example?



**Watch Video Solution**

**34.** How sex determination takes place in human? Explain with example.



**Watch Video Solution**

**35.** Explain the Darwin's theory of evolution 'Natural selection' with an example?



**Watch Video Solution**

**36.** What are variations? Explain with a suitable example.



**Watch Video Solution**

**37.** What variations generally have you observed in the species of cow?



**Watch Video Solution**

**38.** What are the characters Mendel selected for his experiments on pea plant?



**Watch Video Solution**

**39.** In what way Mendel used the word 'Traits'- explain with an example.



**Watch Video Solution**

**40.** What differences Mendel identified between parent and  $F_2$  generation.



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**42.** Write a brief note on analogous organs.



**Watch Video Solution**

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**47.** With the help of given information write your comment on evidences of evolution.

Mammals have four limbs as do birds, reptiles and amphibians. The basic structure of the limbs is similar, though it has been modified to perform different functions.



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**48.** Collect information about carbon dating method. Discuss with your physical science



teacher.



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**49.** Draw a checker board show the law of independent assortment with a flow chart and explain the ratio.



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**50.** Explain the process to understand monohybrid cross of Mendel experiment with

a checker board.



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**51.** Prepare a flow chart showing evolution of man through ages.



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**52.** Nature selects only desirable characters.  
Prepare a cartoon.



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**53.** What is your understanding about survival of the fittest. Give some situations or examples that you observe in your surroundings?



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**54.** Write a monologue on evolution of a man to perform a stage show on the theatre day in your school.



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## Improve Your Learning Fill In The Blanks

1. The process of acquiring character or traits is called \_\_\_\_\_ .



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2. Mendel's experiment explains about \_\_\_\_\_ .



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3. The four characters observed in the experiments on law of independent assortment are \_\_\_\_\_.



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4. If we cross pollinate red flower plant with white flower we will get \_\_\_\_\_ percent of recessive trait plants.



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5. TT or YY, Tt or Yy are responsible for a \_\_\_\_\_ character.



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6. Humans have \_\_\_\_\_ pairs of autosomes and \_\_\_\_\_ pair of sex chromosomes.



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7. The population grows in \_\_\_\_\_ progression where as food sources grow in \_\_\_\_\_ progression.



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8. A goat which can't walk properly can't live for a long time. According to Darwin this represents \_\_\_\_\_.



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9. Forelimb of whale is for swimming where as in horse it is used for \_\_\_\_\_ .



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10. The study of fossils is called \_\_\_\_\_ .



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**Improve Your Learning Choose The Correct Answer**



1. Which of the following is not a variation in rose plant.

A. 1. Coloured petals

B. 2. Spines

C. 3. Tendrils

D. 4. Leaf margin

**Answer:**



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2. According to Mendel alleles have the following character.

A. 1. Pair of genes

B. 2. Responsible for character

C. 3. Production of Gametes

D. 4. Recessive factors

**Answer:**



**Watch Video Solution**

### 3. Natural selection means

- A. 1. Nature selects desirable characters
- B. 2. Nature rejects undesirable characters
- C. 3. Nature reacts with an organism
- D. 4. Both A and B

**Answer:**



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4. Palaeontologists deal with

A. Embryological evidences

B. Fossil evidences

C. Vestigial organ evidences

D. all

**Answer:**



**Watch Video Solution**

1. The process of acquiring change is called



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2. Mendel's experiment of pea plant stands for

\_\_\_\_\_.

A. reproduction

B. circulation

C. inheritance

D. evolution

**Answer:**



**Watch Video Solution**

3. The four characters observed in the experiments on law of independent assortment are \_\_\_\_\_ .



**Watch Video Solution**

4. If we cross pollinate red flower plant with white flower we will get \_\_\_\_\_ percent of

mixed colour plants.



**Watch Video Solution**

5. TT or YY, Tt or Yy are responsible for a \_\_\_\_\_ character.



**Watch Video Solution**

6. Female baby having 23 pairs of autosomes at the age of 18 years she has \_\_\_\_\_ pair autosomes and \_\_\_\_\_ of sex chromosomes.



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7. The population grows in \_\_\_\_\_ progression where as food sources grow in \_\_\_\_\_ progression.



Watch Video Solution

8. A goat which can't walk properly can't live for a long time. According to Darwin this represents \_\_\_\_\_.





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[Choose The Correct Answer](#)

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**Watch Video Solution**