

QB365

Important Questions - Heredity and Evolution

10th Standard CBSE

Science

Reg.No. :

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Time : 01:00:00 Hrs

Total Marks : 50

**Section - A**

- 1) In evolutionary terms, we have more in common with **1**  
(a) A Chinese school-boy. (b) A chimpanzee (c) A spider (d) A bacterium
- 2) Which of the following statement is incorrect? **1**  
(a) For every hormone there is a gene (b) For every protein there is a gene  
(c) For production of every enzyme there is a gene. (d) For every molecule of fat there is a gene.
- 3) The maleness of a child is determined by **1**  
(a) the X chromosome in the zygote (b) the Y chromosome in zygote  
(c) the cytoplasm of germ cell which determines the sex. (d) sex is determined by chance
- 4) New species may be formed if **1**  
(i) DNA undergoes significant changes in germ cells  
(ii) chromosome number changes in the gamete  
(iii) there is no change in the genetic material  
(iv) mating does not take place  
(a) (i) and (ii) (b) (i) and (iii) (c) (ii), (iii) and (iv) (d) (i), (ii) and (iii)
- 5) Select the correct statement **1**  
(a) Tendril of a pea plant and phylloclade of Opuntia are homologous.  
(b) Tendril of a pea plant and phylloclade of Opuntia are analogous  
(c) Wings of birds and limbs of lizards are analogous (d) Wings of birds and wings of bat are homologous
- 6) In peas, a pure tall plant (TT) is crossed with a short plant (tt). The ratio of pure tall plants to short plants in F<sub>2</sub> is **1**  
(a) 1:3 (b) 3:1 (c) 1:1 (d) 2:1
- 7) Some dinosaurs had feathers although they could not fly but birds have feathers that help them to fly. In the context of evolution this means that **1**  
(a) reptiles have evolved from birds (b) there is no evolutionary connection between reptiles and birds  
(c) feathers are homologous structures in both the organisms (d) birds have evolved from reptiles.
- 8) What is speciation? **1**
- 9) A normal pea plant bearing coloured flowers suddenly start producing white flowers. What could be the possible cause? **1**

10) Name two organisms in which sex determination is regulated by environmental factors. 1

**Section - B**

11) How is the equal genetic contribution of male and female parents ensured in the progeny? 2

12) Mala is four-month pregnant and is worried whether the child is male or female. One day she reads an advertisement regarding a medicine which if taken for 3 months results in birth of male child. What should she do? 2

(a) Get the medicine and take it regularly.

(b) Visit a doctor and discuss the problem with him/her.

(c) What, in your opinion, are the chances of having a male child?

13) What is the genotype of dwarf plants whose parental cross always produced tall offspring? 2

14) What is the main difference between sperms and eggs of humans? Write the importance of this difference. 2

15) Explain with the help of suitable examples why certain traits cannot be passed onto the next generation? what are such traits called? 2

16) What are fossils? What do they tell us about the process of evolution? 2

17) List three factors that provide evidences in favour of evolution in organisms and state the role of each in brief. 2

18) List three distinguishing features in tabular form between acquired trait and inherited trait. 2

19) Explain the various stages of evolution. 2

20) Describe any three ways in which individuals with a particular trait may increase in population. 2

**Section - c**

21) Differentiate between inherited and acquired characters. Give one example for each type. 5

22) Give reasons for the appearance of new combinations of characters in the  $F_2$  progeny. 5

23) (a) Why did Mendel choose garden pea for his experiment? Write two reasons. 5

(b) List two contrasting visible characters of garden pea Mendel used for his experiment.

(c) Explain in brief how Mendel interpreted his results to show that the traits may be dominant or recessive.

24) What is meant by speciation? List four factors which could lead to speciation. Which of these cannot be a major factor in the speciation of a self-pollinating plant species. Give reason to justify your answer. 5

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