Page 150

Question 1. What are the different ways in which individuals with a particular trait may increase in a population ?
Answer: Different ways are : variation, natural selection and genetic drift (isolation).

Question 2. Why are traits acquired during the lifetime of an individual not inherited ?
Answer: Because acquired characters bring changes only in non-reproductive tissues and cannot change the genes of the germ cells. Thus, acquired traits cannot be passed to next generation.

Question 3. Why are the small numbers of surviving tigers a cause of worry from the point of view of genetics ?
Answer: (i) If any natural calamity occurs and kills these small number of surviving tigers, they can become extinct resulting in the loss of some genes forever.
(ii) Small number will lead to little recombination and, therefore, lesser variations. These both are very important for giving better survival chances to the species.
(iii) Less number of species means lesser extent of diversity and lesser number Of traits which reduces the chances of adaptability with respect to the change in the environment.

Page 151

Question 1. What factors could lead to the rise of a new species ?
Answer: Genetic variations, natural selection and reproductive isolation could lead to the rise of a new species.

Question 2. Will geographical isolation be a major factor in the speciation of a self-pollinating plant species ? Why or why not ?
Answer: No, because pollination occurs on the same plant in self-pollinating plant species.

Question 3. Will geographical isolation be a major factor in the speciation of an organism that reproduces asexually ? Why or why not ?
Answer: No, because asexual reproduction involves single parent or organism.

Page 156

Question 1. Give an example of characteristics being used to determine how close two species am in evolutionary terms ?
Answer: Homologous organs, analogous organs and vestigial organs help to identify evolutionary relationships amongst the species.

Question 2. Can the wing of butterfly and the wing of a bat be considered homologous organs ? Why or why not ?
Answer: No, wing of a bat and wing of a bird cannot be considered as homologous organs because they have different basic structure.

Question 3. What are fossils ? What do they tell us about the process of evolution ?

Answer: Fossils are the impression or remains of ancient life found preserved in the sedimentary rocks. Fossils are direct evidences of evolution. Fossils also help to identify evolutionary relationship between apparently different species. They also tell about the extent of evolution that has taken place.

Page 158
Question 1. 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 ?
Answer: They look different because of interaction of genes with environment which results in change in their appearance. But they belong to the same species as they have same number of chromosomes and can breed among themselves.

Question 2. In evolutionary terms, can we say which among bacteria, spiders, fish and chimpanzees have a 'better body design' why or why not ?
Answer: No, because different designs are the product of evolution and different species have different body design to suit or adapt to their environment.

********** END **********