Chapter-4

Worksheet- 1

1. When an individual is having both the alleles of a contrasting character, it is said to be:
   (a) homozygous
   (b) heterozygous
   (c) dioecious
   (d) monoecious.

2. Father of genetics is:
   (a) Newton
   (b) Mendel
   (c) Khurana
   (d) Darwin.

3. The pairs of characters used by Mendel during his experiments were:
   (a) ten
   (b) six
   (c) seven
   (d) two

4. 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

   (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

5. Mendel performed his famous hybridization experiments on:
   (a) garden pea
   (b) Hibiscus
   (c) rose
   (d) cucurbita

6. Round and yellow seed colour is:
   (a) incomplete dominance
   (b) recessive
   (c) hybrid
   (d) dominant

7. The theory of evolution of species by natural selection was given by

(a)Mendel (b) Darwin (c) Morgan (d) Lamarck

8. A basket of vegetables contains carrot, potato, radish and tomato. Which of them represent the correct homologous structures?
   (a) Carrot and potato (b) Carrot and tomato
   (c) Radish and carrot (d) Radish and potato

9. Select the correct statement
   (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

10. Assertion(A): Variations are seen in offspring produced by asexual reproduction.

Reason (R): DNA molecule generated by replication is not exactly identical to original DNA.

(a) Both A and R are true and R is the correct explanation of A.

(b) Both A and R are true but R is not the correct explanation of A.

(c) A is true but R is false.

(d) A is false but R is true.

11. Name any five vegetables generated from a common ancestor through artificial selection rather than natural selection. Also mention the features for which each vegetable is selected.

12. 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- bold A or O is dominant? Why or why not?

13. How do Mendel's experiments show that the
(a)traits may be dominant or recessive?
(b)traits are inherited independently?

14. What are fossils? How are they formed? Describe in brief two methods of determining the age of fossils. State any one role of fossils in the study of the process of evolution.

15. Do genetic combinations of mother play a significant role in determining the sex of new born?

16. What is genetic drift?

17. What is the contribution of Mendel to genetics?

18. What is speciation? List four factors responsible for speciation.

19. List two differences between acquired traits and inherited traits by giving an example of each.

20. "Two areas of study namely 'evolution' and 'classification' are interlinked". Justify this statement.