Vidya Bhawan Balika Vidyapeeth Lakhisarai

Arun Kumar Gupta

Class 12th

Sub. Biology

Date:- 15.09.20

Evidences of evolution come from

(i) Palaeontology (ii) Comparative anatomy and morphology
(iii) Biochemical/Physiology (iv) Biogeography
(v) Embryology

(i) Palaeontology is the study of fossils. The fossils are the remains of past organisms preserved in sedimentary rocks

(a) Rocks form sediments and a cross-section of earth's crust indicates the arrangement of sediments one over the other during the long history of earth.

(b) Different aged rock sediments contain fossils of different life forms, who died during the formation of the particular sediment,

(c) Some organisms appear similar to modern organisms. They represent extinct organisms like dinosaurs.

(d) A study of fossils in different sedimentary layers indicates the geological period in which they existed.

(e) The study showed that life forms varied over time and certain life forms are restricted to certain geological time-scale Hence, new forms of life have evolved at different times in the history of earth,

(ii) Comparative anatomy and morphological evidences show the similarities and differences among the organisms of today and those that existed years ago.

The evidences come from comparative study of external and internal structure.

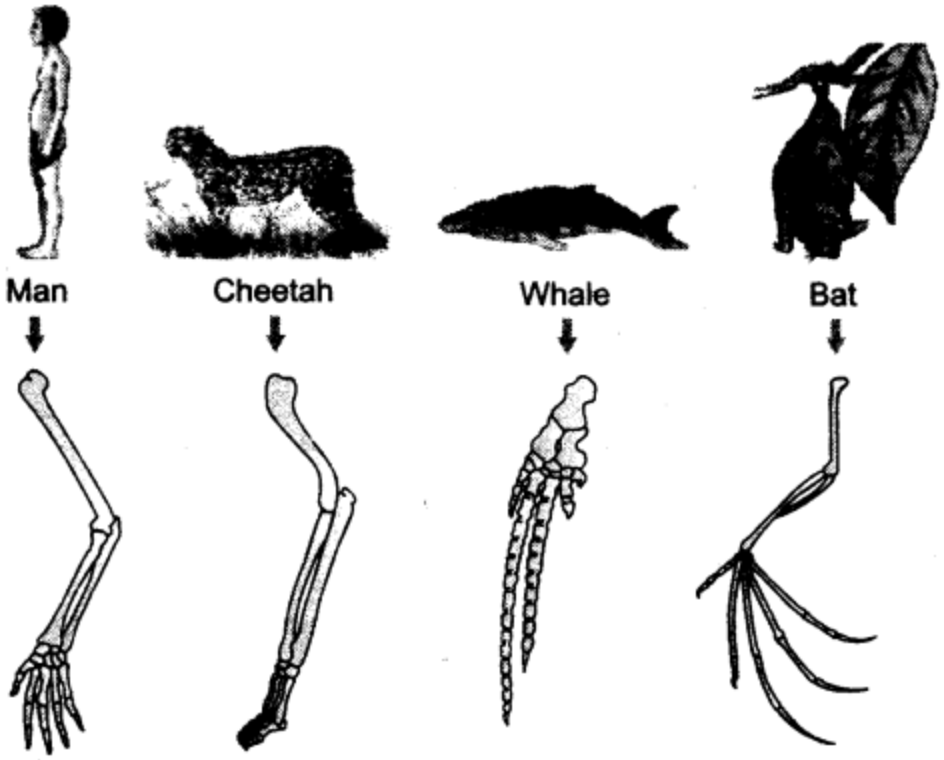
I. (a) The organs with same structural design and origin but different functions are called homologous organs. Examples are forelimbs of some animals like whales, bats and cheetah have similar anatomical structure, such as humerus, radius, ulna, carpals, metacarpals and phalanges.

(b) Homology in organ indicates common ancestry.

(c) Other examples of homology are vertebrate hearts or brains. In plants also, thorns and tendrils of Bougainvillea and Cucurbita represent homology.

(d) Homology is based on divergent evolution. The same structure developed along different

directions due to adaptations to different needs. The condition is called divergent evolution.



Homologous organs in animals (forelimb)