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Q:- Write Notes on PRINCIPLE OF EVOLUTION?

Ans:- Principles of Evolution. Evolution is the change in inheritable traits in a population over generations. change in traits is caused by changes in the genes (in DNA) that code for those traits. Natural selection tends to increase favorable traits in a population and decrease unfavorable traits.

Evolution :-

Evolution is change in the heritable characteristics of biological populations over successive generations. These characteristics are the expressions of genes that

are passed on from parent to offspring during reproduction. Different characteristics tend to exist within any given population as a result of mutation, genetic recombination and other sources of genetic variation. Evolution occurs when evolutionary processes such as natural selection (including sexual selection) and genetic drift act on this variation, resulting in certain characteristics becoming more common or more within a population. It is this process of evolution that has given rise to biodiversity at every level of biological organization, including the levels of species, individual organisms and molecules.

The scientific theory of evolution by natural selection was conceived independently by Charles Darwin and Alfred Russel Wallace in the mid-19th century and was set out in detail in Darwin's book on the Origin of Species.

All life on Earth share a last universal common ancestor (LUCA) that lived approximately 3.5 - 3.8 billion years ago. The fossil record includes a progression from early biogenic graphite, to microbial mat fossils, to fossilised multicellular organisms. Existing patterns of biodiversity have been shaped by repeated formations of new species (speciation), changes within species (anagenesis), and loss of species (extinction) throughout the evolutionary history of life on Earth. Morphological and biochemical traits are more similar among species that share a more recent common ancestor, and can be used to reconstruct phylogenetic trees.

History of evolutionary thought :-

classical times :-

The proposal that one type of organism could descend from another type goes back to some of the first pre-Socratic Greek philosophers, such as Anaximander and Empedocles. Such proposals survived into Roman times. The poet and philosopher Lucretius followed Empedocles in his masterpiece *De rerum natura* (on the Nature of things).

Medieval :-

In contrast to these materialistic views, Aristotelianism considered all natural things as actualisations of fixed natural possibilities, known as forms. This was part of a medieval teleological understanding of nature in which all things have an intended role to play in a divine cosmic order. Variations of this idea became the standard understanding of the Middle Ages and were integrated into Christian learning, but Aristotle did not demand that

Real types of organisms always correspond one-for-one with exact metaphysical forms and specifically gave examples of how new types of living things could come to be.

see also :-

- Argument from poor design
- Biological classification
- Evidence of common descent
- Evolution in variable environment
- Evolutionary anthropology
- Evolutionary ecology
- Evolutionary epistemology
- Evolutionary neuroscience
- Evolution of biological complexity
- Evolution of plants
- Project Steve
- Timeline of the evolutionary history of life
- Universal Darwinism