



Course – B.Sc Botany

- Semester- IV
- Paper Name- Plant Systematics / BOT CC 410
- Topic – Homology and Analogy
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HOMOLOGY (HOMO- SAME , LOGOUS – ORIGIN

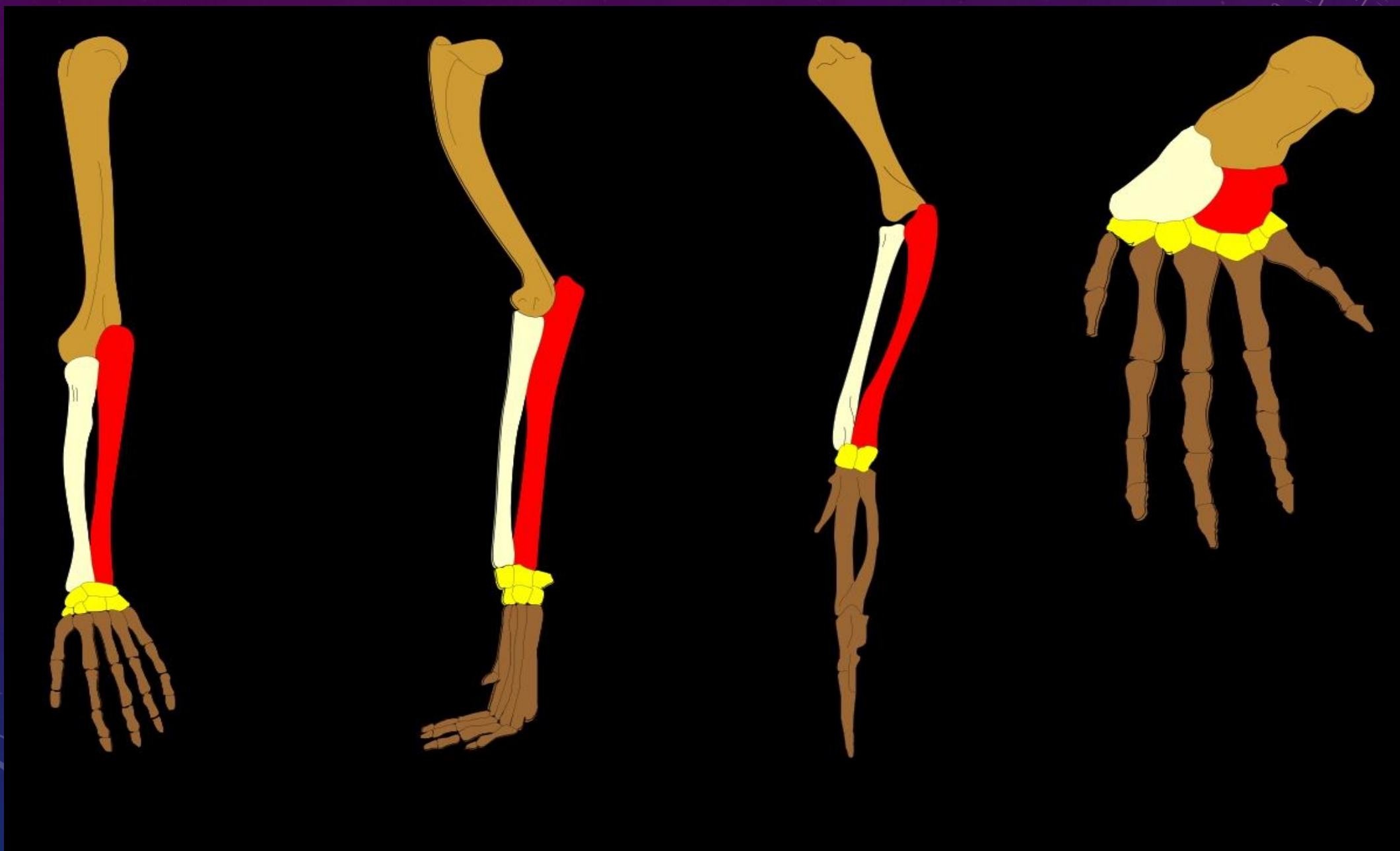
Richard Owen (1804-1892) introduced the term homology

- The origin with same structural design and origin but with different function are called homologous organ .
- Homologous structure as a result of divergent evolution.

- Homology indicates common ancestor.
- Due to different need , same structures developed differently ,this is called divergent evolution .

HOMOLOGY IN PLANTS

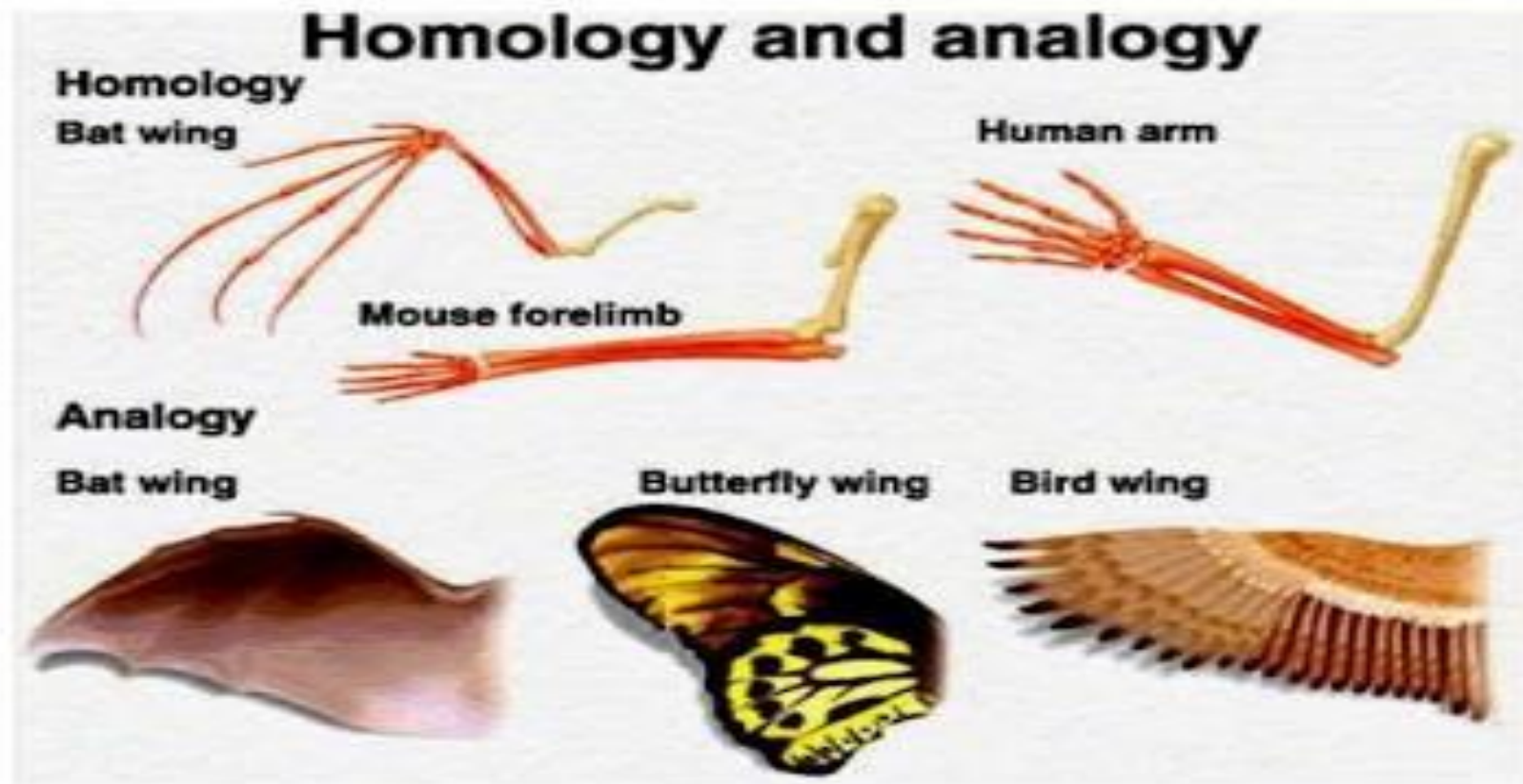
- Plants too have homologous structures like Pitcher plant, Venus trap, Poinsettia and Cactus, the leaves show different functions and shape from the normal ones.
- Each leaf is a Homologous structure derived from a common ancestral form. The tendril of a pea plant and spines of a barberry plant are homologous organs showing similar functions.



EXAMPLES OF HOMOLOGOUS ORGANS:

- Forelimb of mammals
- Legs of vertebrate
- Mouth part of insect
- Homology is also seen in the Skeleton , healthy blood vessels .

EXAMPLES



ANALOGY (ANA – DIFFERENT, LOGOUS – ORIGIN)

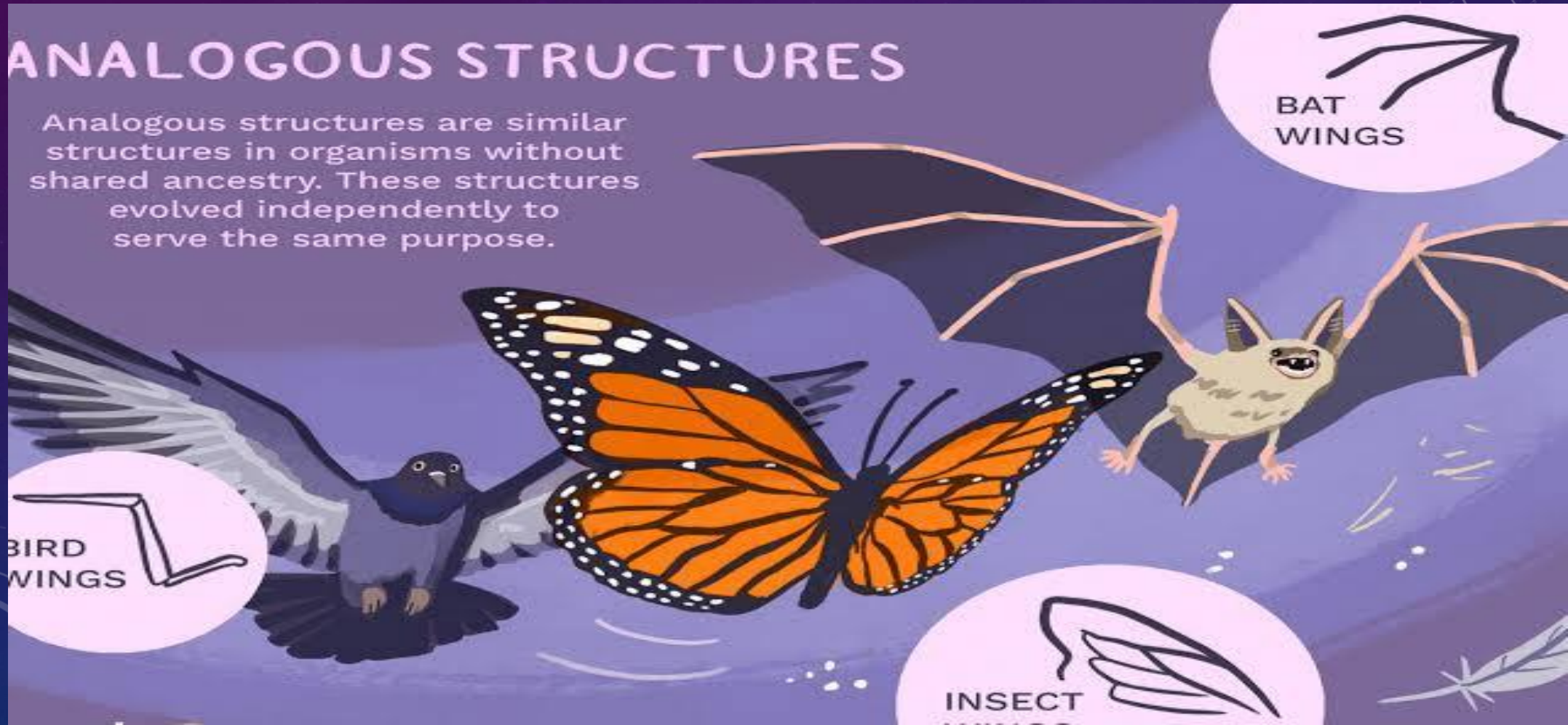
- The organs which have similar functions but different in their structural details and origin are called Analogous Organ.
- The analogous structures are the result of convergent evolution

- Analogous organs do not show common ancestry but they show evolution.
- Convergent evolution is the independent evolution of similar features in species of different periods.

EXAMPLES:

ANALOGOUS STRUCTURES

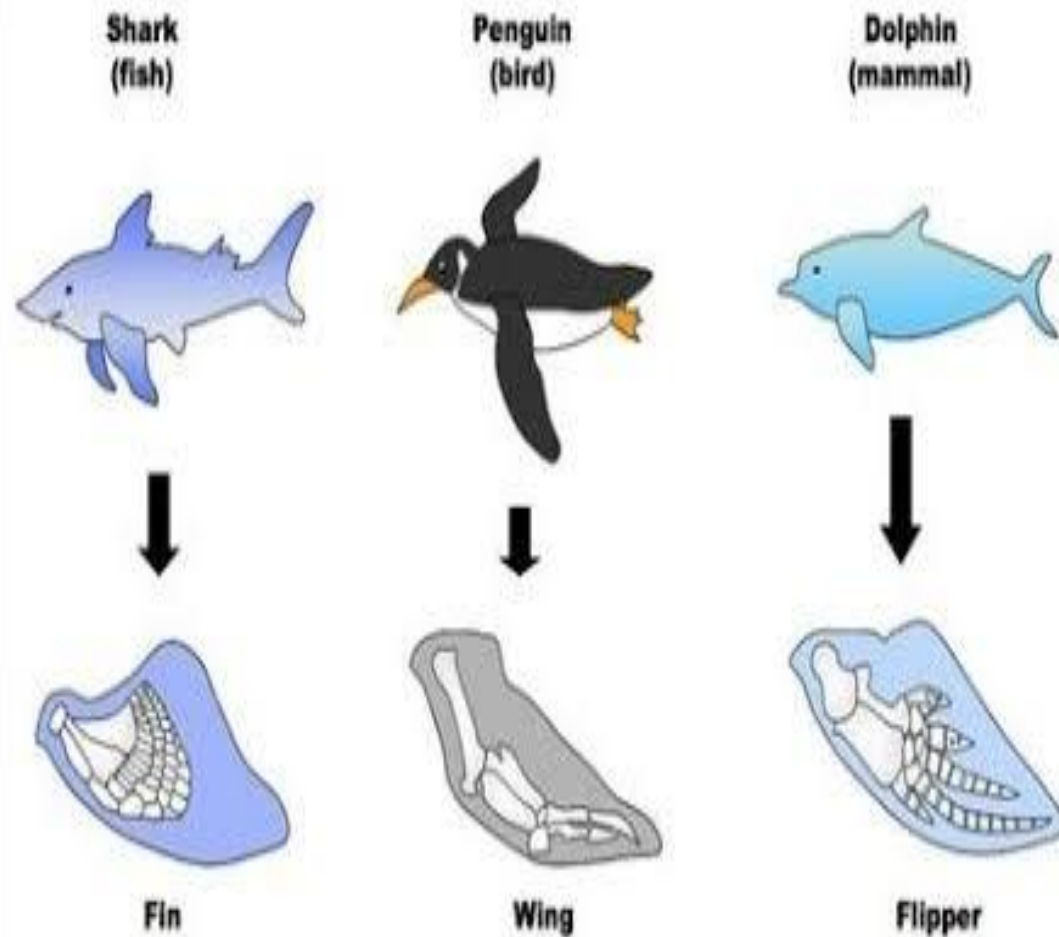
Analogous structures are similar structures in organisms without shared ancestry. These structures evolved independently to serve the same purpose.



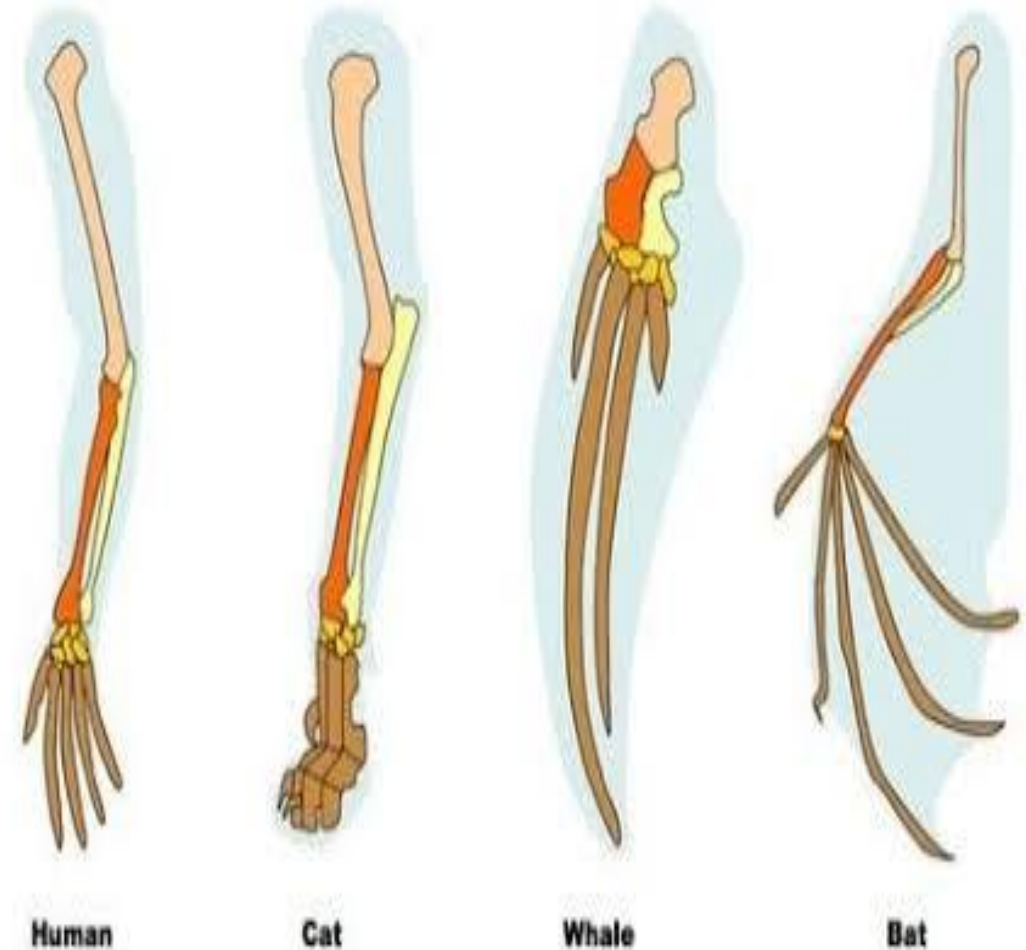
EXAMPLES OF ANALOGOUS ORGANS :

- Dog fish and Whale
- Hands of Man and Trunk of Elephants
- Wings of Butterflies and Mammals
- Sweet Potato (root modification) and Potato (stem modification)
- Eyes of Octopus and Mammals.

Analogous Structures (*Streamline Appendages*)



Homologous Structures (*Pentadactyl Limbs*)





THANK YOU