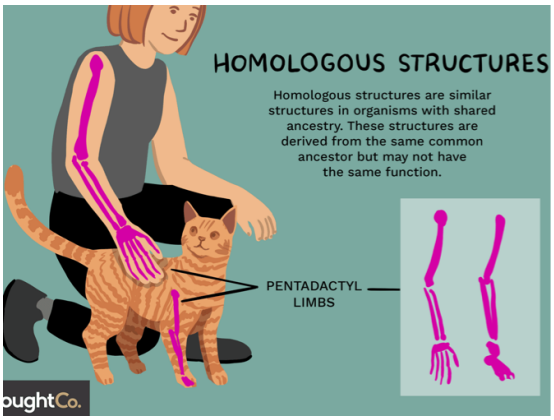
NAME: EKPO MFONIDO EKPERIKPE
DEPT: ANATOMY
MAT.NO.: 18/MHS03/017
COURSE TITLE: ANIMAL HANDLING AND COMPARATIVE MAMMALIAN GROSS ANATOMY

QUESTION 1:
COMMENT ON THE RELEVANCE OF COMPARATIVE ANATOMY TO EVOLUTION

ANSWER:
First of all, comparative anatomy is tasked with the duty of determining the relationships between organisms. It also assists scientists in classifying organisms based on similar characteristics of their anatomical structures. This is very relevant to evolution, in that it offers very important evidence for evolution. Anatomical similarities between organisms support the idea that these organisms evolved from a common ancestor.
Evidence for evolution is provided by homologous structures. These are structures shared by related organisms that were inherited from a common ancestor. Other evidence is provided by analogous structures. These are structures that unrelated organisms share because they evolved for the same function.
All these discoveries are made possible by comparative anatomy!

QUESTION 2:
DISCUSS THE TYPES OF COMPARATIVE ANATOMY WITH RELEVANT EXAMPLES.

ANSWERS:
There are two major types of comparative anatomy (based on homologous and analogous structures)



1. Homologous structures - These are structures, which are similar in different species because the species have a common ancestry and have evolved, usually divergently, from a shared ancestor. They may or may not perform the same function. An example is the forelimb structure shared by cats, birds, humans, bats, and even whales. At first glance, you wouldn't think whales and humans are very closely related, but millions of years ago, there was one ancestor whom we are both related to. That ancestor had offspring that were all a little different, and different traits were selected for it through evolution. New species were created, and even newer species evolved from those species. However, the arm bone structure was advantageous to all the species, and so it remained in all the descendant species. Now, although we all look different, birds, bats, whales and humans all retain the arm bone structure from our ancestors.

2. Analogous structures- These structures are similar in different organisms because, in convergent evolution, they evolved in a *similar environment*, rather than were inherited from a recent common ancestor. They usually serve the same or similar purposes. An example is the streamlined torpedo body shape of porpoises and sharks! So even though they evolved from different ancestors, porpoises and sharks developed analogous structures as a result of their evolution in the same aquatic environment. This is known as a homoplasy. Another example is bird's wings and insects wings, although both are considered wings for flight, they are structured very differently and they do not share a common ancestor.