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**MATRIC NUMBER: 17/MHS03/012**

**DEPARTMENT: ANATOMY**

**COURSE: ANA 314 (ANIMAL HANDLING AND COMPARATIVE ANATOMY)**

 **ASSIGNMENT**

1. Comment on the relevance of comparative anatomy to evolution

 Comparative anatomy is an important tool that helps determine evolutionary relationships between organisms and whether or not they share common ancestors. It is an important evidence for evolution. By comparing the anatomical structure of organisms, some similarities will be observed which indicates that these organisms evolved from a common ancestor.

 For example, some organisms have anatomical structures that are very similar in embryological development and form, but very different in function. These are called homologous structures. Since these structures are so similar, they indicate an evolutionary relationship and a common ancestor of the species that possess them. With the idea of comparing the anatomy of different organisms, scientists have been able to identify certain organisms that evolve from the same ancestors.

1. Discuss the types of comparative anatomy with relevant examples

They are classified based on:

1. Homologous structures: These are organs or skeletal elements of animals and organisms that, by virtue of their similarity, suggest their connection to a common ancestor. These structures are similar but carry out different functions. The most important part, as hinted by their name, is that they are structurally similar. Examples include: The arm of a human, the wing of a bird or a bat, the leg of a dog and the flipper of a dolphin or whale. They are homologous structures. They are different and have a different purpose, but they are similar in structure and share common traits. Each possess the same number of bones arranged in almost the same way.
2. Analogous structures: These are features of different species that are similar in function but are structurally different. These are seen on organisms that are not necessarily closely related, but live in similar environments and have similar adaptations. They do not have a common ancestry. Examples are:

-The wings of birds and insects for flying although the structures are different

-Fat insulated, streamlined shapes of seals & penguins

1. Vestigial Structures: Vestigial structures are various cells, tissues, and organs in a body which no longer function in the same way the ancestral form of the trait functioned i.e. many animals have structures in their bodies which seem to be of no use to them. These parts are called vestigial structures. In other species the same structures exist and they have a definite function. Examples:

-Dogs & humans have a similar set of muscles attached to their ears. The dogs can use these to “point” its ears in the direction of a sound, humans cannot.

-In humans the appendix, coccyx and hair are all vestigial structures