

Assignment No. 1

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Zoo301-Animal form & Function-1

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Solution:

Give A Comparative Analysis of Skeletal System of Vertebrates and Invertebrates in detail.

Skeletal System of Vertebrates: Cartilage, Bone.

Introduction:

Skeletal System of Vertebrates is an endoskeleton enclosed by other tissues.

The endoskeleton consists of cartilage and bone.

Cartilage is a specialized type of connective tissue that provides:

- Support
- Helps in movement at joint
- Site for muscle attachment.

Histologically it consists of:

1. Cells (chondrocytes)
2. Fibers
3. Cellular matrix

Bone or Osseous tissue has the following functions.

- Provides a point of attachment for muscles.
- Support the internal organs of the animal.
- Store reserves calcium and phosphate.
- Manufactures blood cells.
- Bone cells also called osteocytes are located in minute chambers called lacunae, which are arranged in

concentric rings around the osteonic canals.

- These cells communicate with nearby cells through small channels called canaliculae.

Skeleton of fishes:

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Skeletal system in invertebrates:

Body size increased dramatically as organisms evolved from unicellular to multicellular animals.

Systems involved in movement and support evolved simultaneously.

With respect to support, organisms have three kind of skeletons:

1. Hydrostatic
2. Exoskeleton
3. Endoskeleton

Four cell types contribute to movement:

1. Amoeboid cells
2. Flagellated cells
3. Ciliated cells &
4. Muscle cells

Hydrostatic skeleton:

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Earthworm:

Longitudinal and circular muscles contract alternately creating a rhythm that moves the earthworm.

Hydro skeleton keeps the body from collapsing when the muscles contract.