Date _____

Expt. No. 2 Page No. 06

Aim :-

To study the different types of tissues with the help of modals.

Reference :-

A book of "Human Anatomy and physiology". N.N. Yalayyaswamy, C.B.S Publishers, 4th Edition, Page no - 8 to 19.

Requirement:

Different types of models of body tissues.

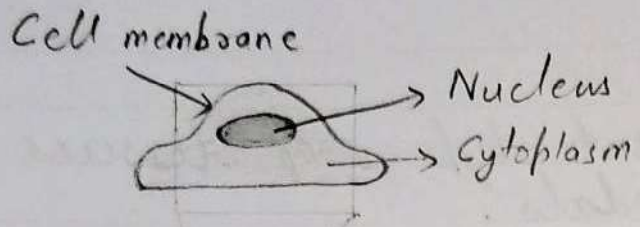
Theory :-

The tissues of the body consist of large numbers of cells, arranged in sheets, intercellular matrix is minimum and cells are situated on basement membrane, eg. skin, They are classified into four principal types according to their function and structure.

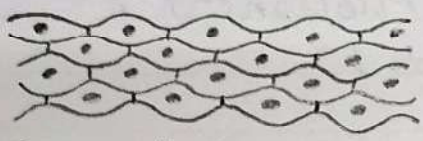
1. Epithelial tissues
2. Connective tissues
3. Muscle tissues
4. Nervous tissue.

Teacher's Signature _____

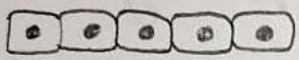
Epithelial Tissue



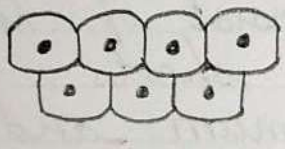
Simple squamous



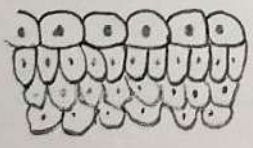
Stratified squamous



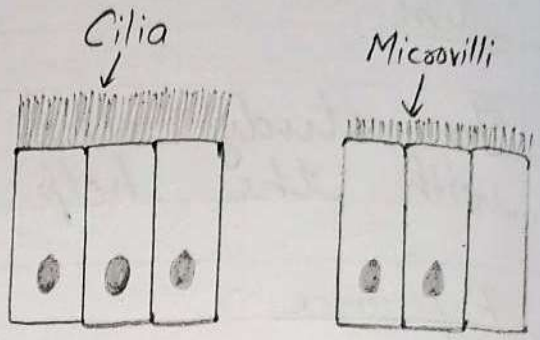
Simple cuboidal



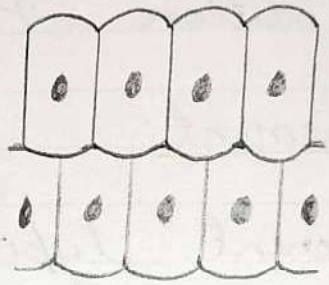
Stratified cuboidal



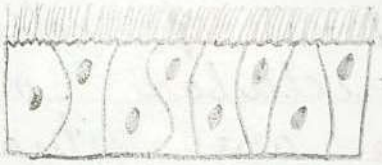
Transitional



Simple columnar



Stratified columnar



Pseudostratified columnar.

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Epithelial Tissue

- Epithelial tissues are widespread throughout the body.
- They form the covering of all body surfaces, line body cavities and hollow organs, and are the major tissue in glands.
- They perform a variety of functions that include protection, secretion, absorption, excretion, filtration, diffusion, and sensory reception.
- The cells in epithelial tissue are tightly packed together with very little intercellular matrix.
- Because the tissue ~~are tightly~~ form coverings and linings, the cells have one free ~~structures~~ surface that is not in contact with other cells.
- This membrane is a mixture of carbohydrate and proteins secreted by the epithelial and connective tissue cells.

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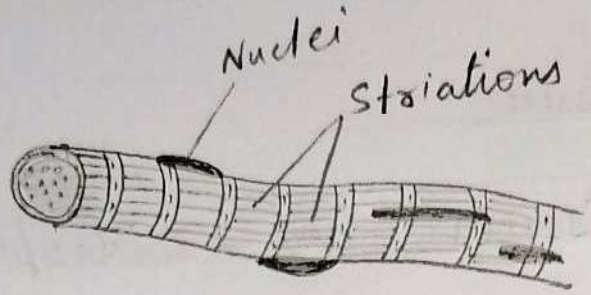

Fig:→(a) Striated muscles.

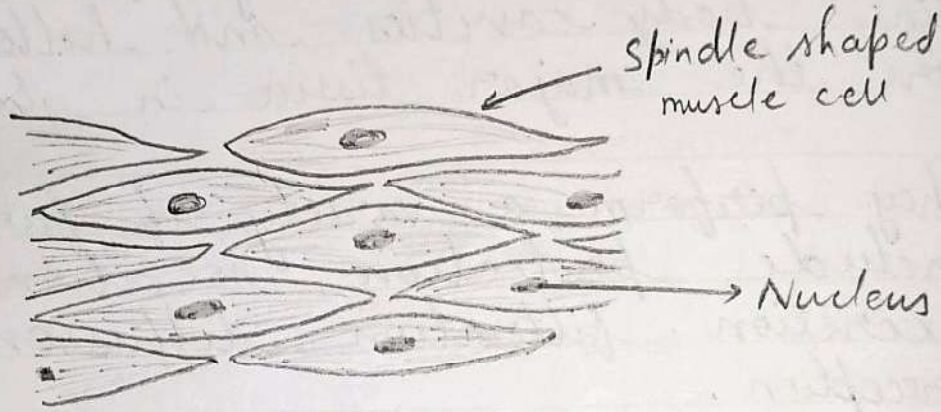

Fig: (b) Smooth muscle

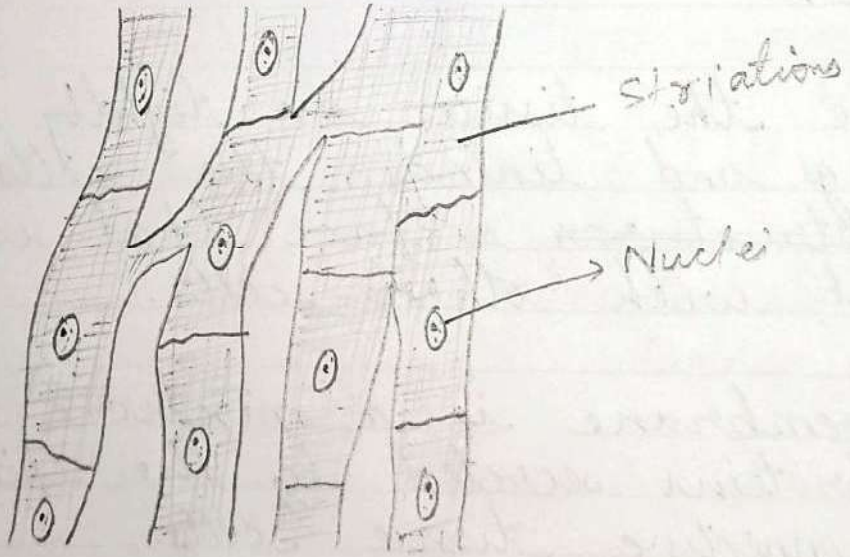

Fig:(c) Cardiac muscle :

• Epithelial cells may be squamous, cuboidal, or columnar in shape and may be arranged in single or multiple layers.

★ Muscle tissue: is a specialized tissue found in animals which functions by contracting, thereby applying forces to different parts of the body.

Function of Muscle Tissue :

Muscle tissue functions as a single unit, and is often connected to the same nerve bundles.

A nerve impulse travelling from the brain or another outside signal tells the muscle to contract.

At the cellular level, each muscle cell has a complex of proteins containing actin and myosin.

Muscle tissue can be used to move bones, compress chambers, or squeeze various oogons.

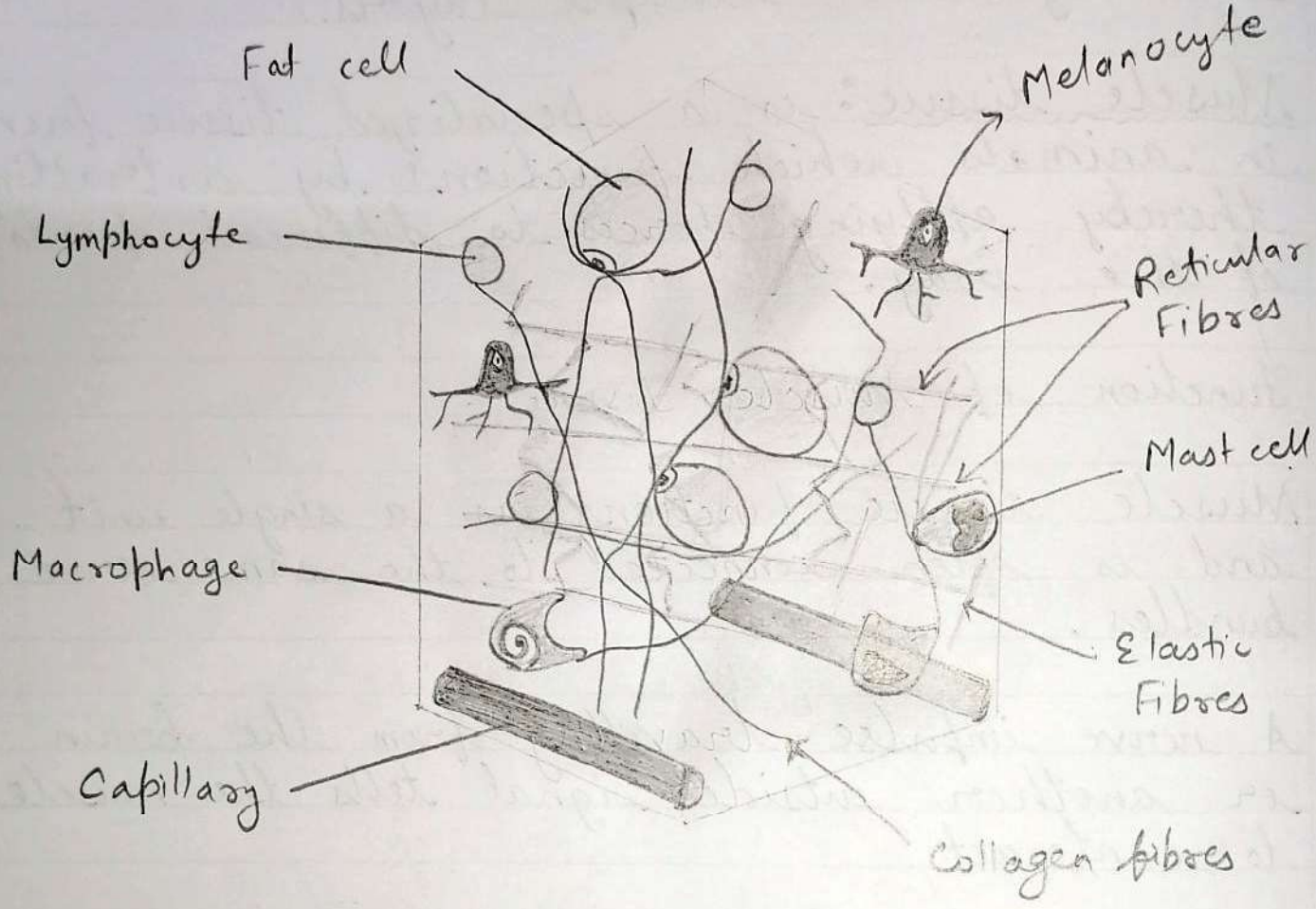

Fig :- Connective Tissue

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Connective Tissue:

Connective tissue, as the name implies, support and connected different tissues.

The elasticity, flexibility and strength of the connective tissues are due to fibres.

The function and types of connective tissues depend on the nature of the intercellular substance present.

Connective tissues contain three types of fibres: collagen, elastic and reticular.

Collagen fibres are the most widespread and made up of fibrous protein, collagen. Collagen fibres are flexible and have high tensile strength (comparable to steel).

Elastic fibres form a network and can be stretched like a ~~red~~ rubber band. They are made up of protein elastin. They retain their original shape and size once the force is removed.

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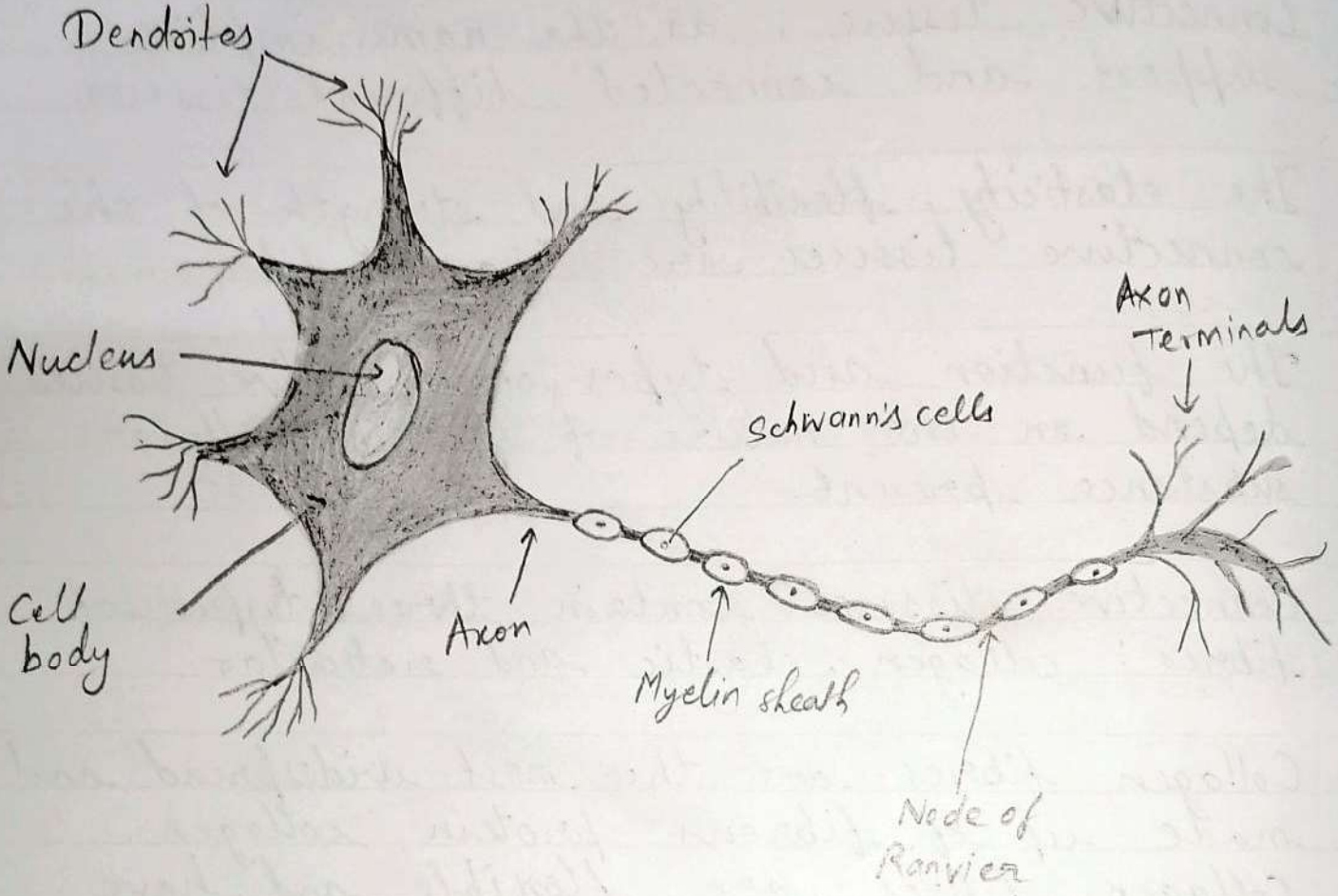
Dendrites
Nucleus
Cell body
Axon
Schwann's cells
Myelin sheath
Node of Ranvier
Axon Terminals

Reticulate fibres consist of collagen and glycoproteins. They are thin and form a delicate network. They join connective tissues to neighbouring tissues.

Fibroblasts are found in developing tissues and play an important part in wound-healing. They are spindle-shaped and present between collagen fibres. They secret tropocollagen and other substances found in the matrix.

Macrophages are also known as scavenger cells. They wander through connective tissues, clear up debris and remove bacteria and other antigens by phagocytosis.

Nervous Tissue :

Nervous tissue is the term for groups of organized cells in the nervous system, which is the organ system that controls the body's movements, sends and carries signals to and from the different parts of the body, and has a role in controlling bodily function such as digestion.

Nervous tissue is grouped into two main categories : neurons and neuroglia.

Teacher's Signature _____

Function of Nervous Tissue :

Nervous tissue makes up the nervous system.

The central nervous system (CNS) is composed of the brain and spinal cord, which coordinates information from all areas of the body and sends nerve impulses that control all bodily movements.

The pheripheral nervous system (PNS) consists of peripheral nerves that branch all throughout the body. It connects the CNS to to the rest of the body and is directly responsible for controlling movements of specific parts of the body.

Conclusion :-

The study of different types of tissues with the help of models was done successfully.