Department of Medical Technology
(General plant sciences)
Lab (3)

The plant cell

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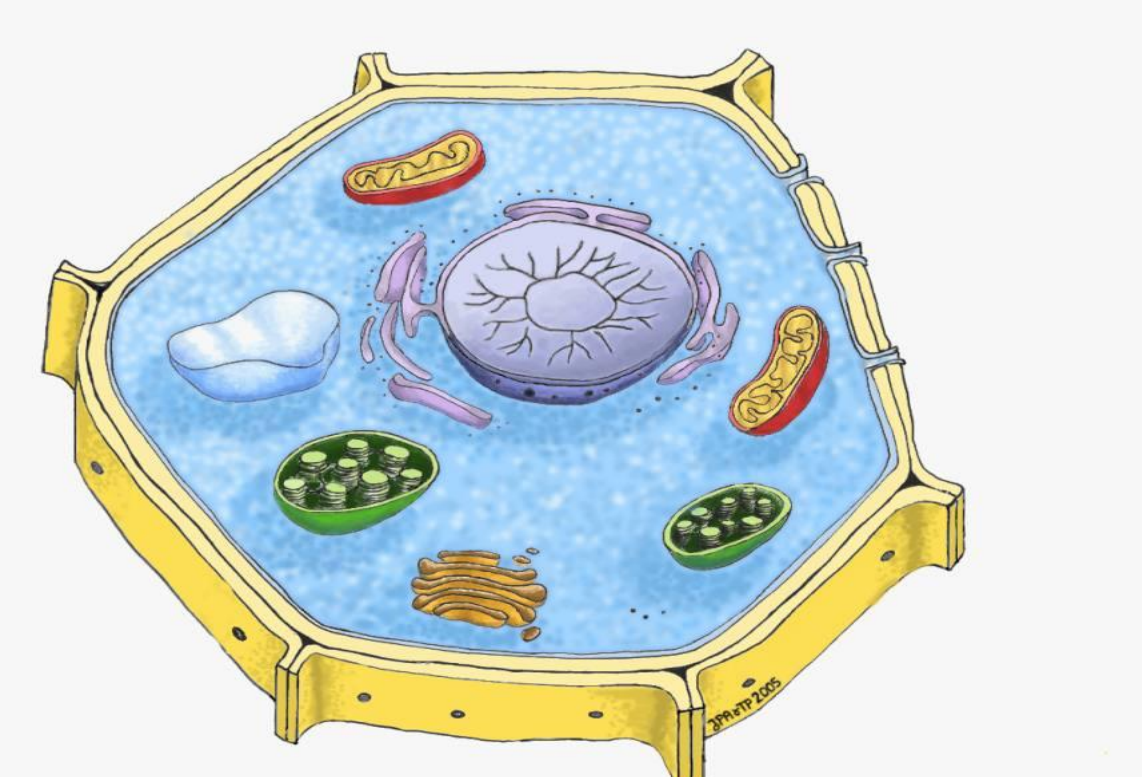
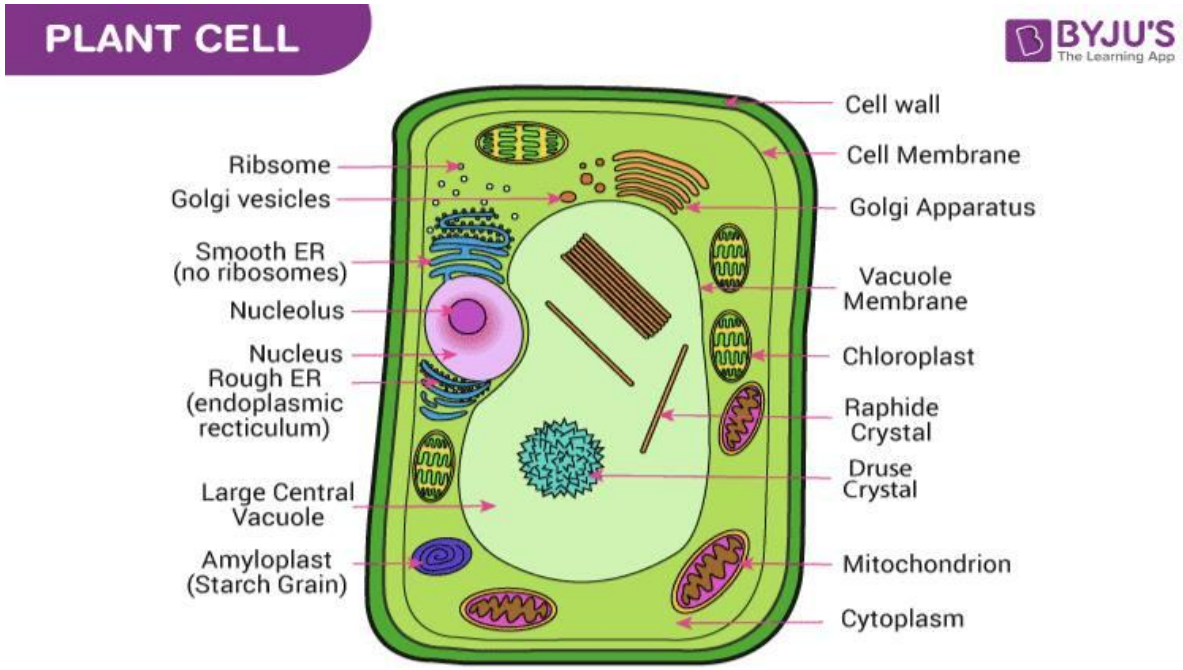
PLANT CELL DEFINITION

Plant cells are eukaryotic cells with a true nucleus along with specialized structures called organelles that carry out certain specific functions



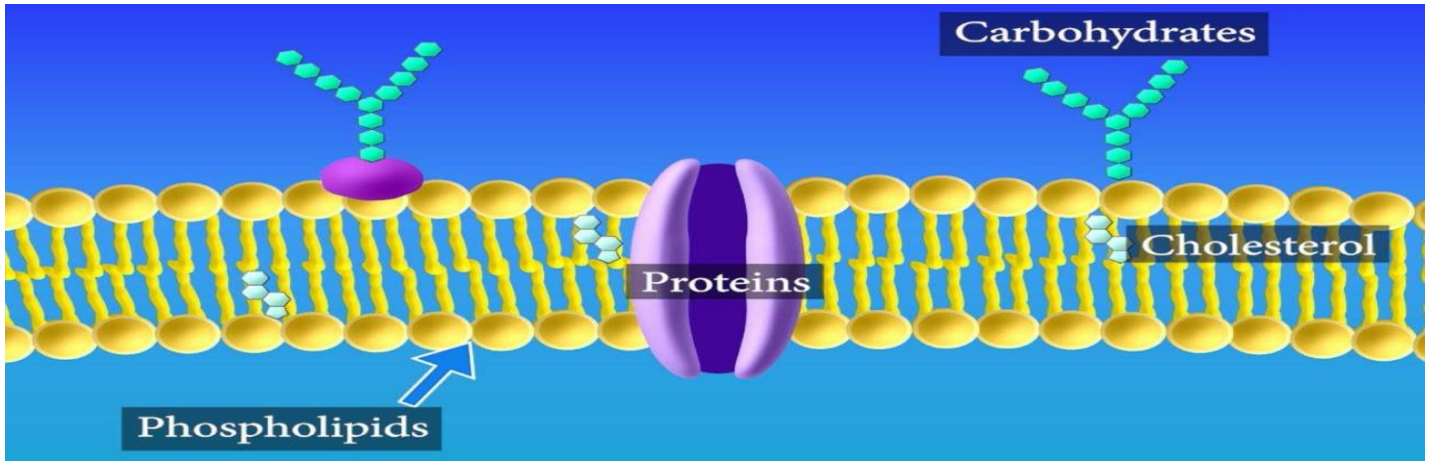
PLANT CELL STRUCTURE

Cell Wallis a rigid layer which is composed of cellulose, glycoproteins, lignin, pectin, and hemicellulose. It is located outside the cell membrane. It comprises proteins, polysaccharides, and cellulose. The primary function of the cell wall is to protect and provide structural support to the cell



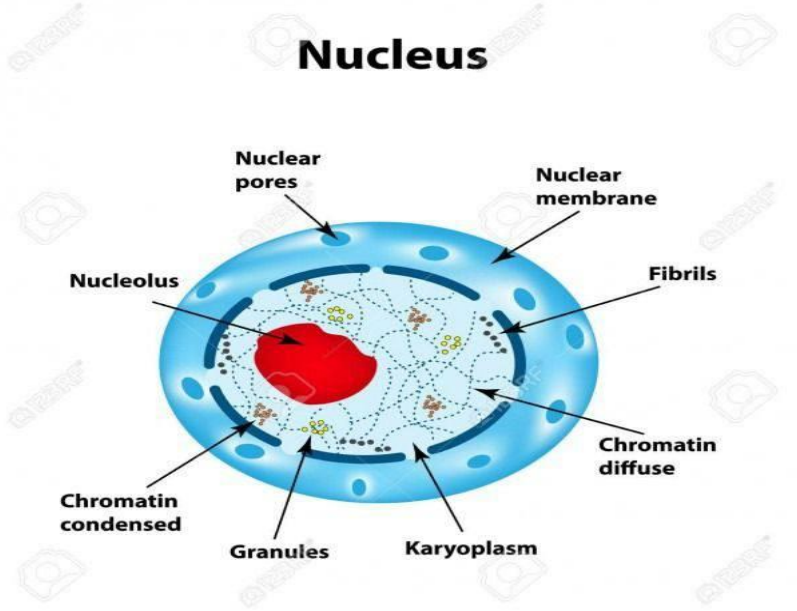
CELL MEMBRANE

It is the semi-permeable membrane that is present within the cell wall. It is composed of a thin layer of protein and fat. The cell membrane plays an important role in regulating the entry and exit of specific substances within the cell. For instance, cell membrane keeps toxins from entering inside.



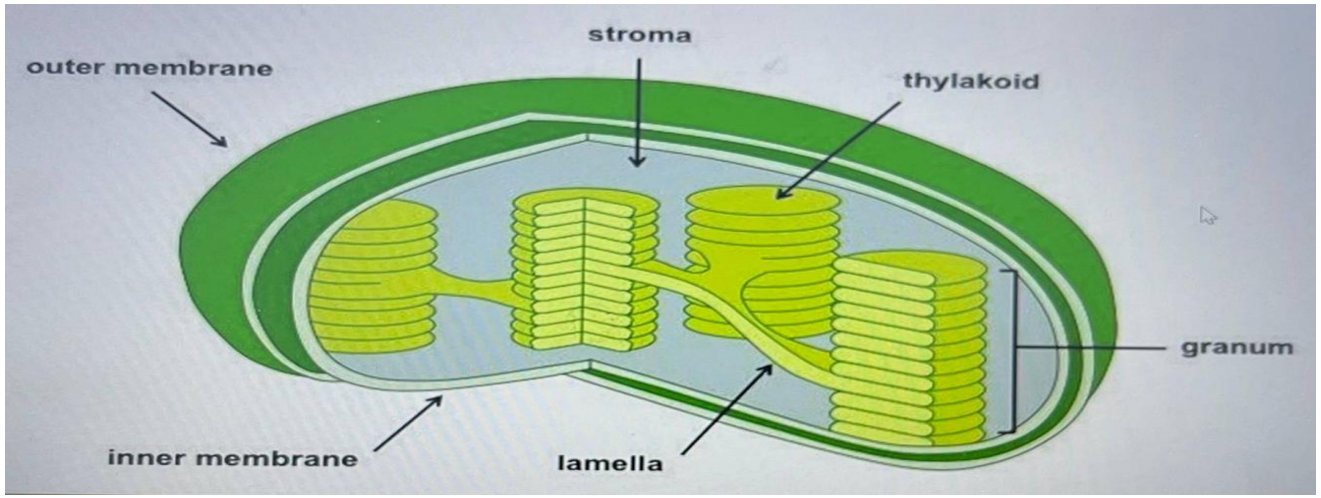
NUCLEUS

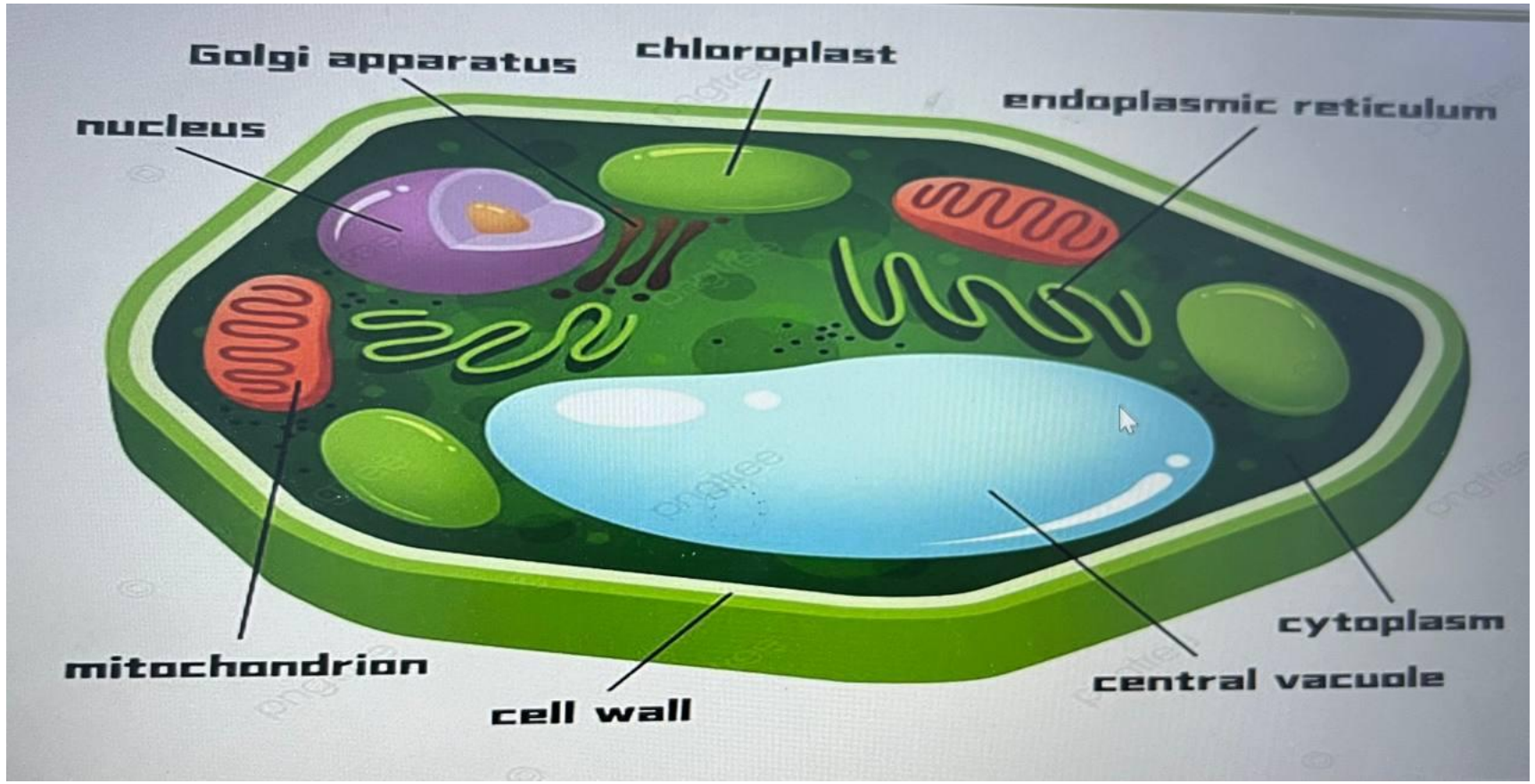
The nucleus is a membrane-bound structure that is present only in eukaryotic cells. The vital function of a nucleus is to store DNA or hereditary information required for cell division. metabolism. and growth.

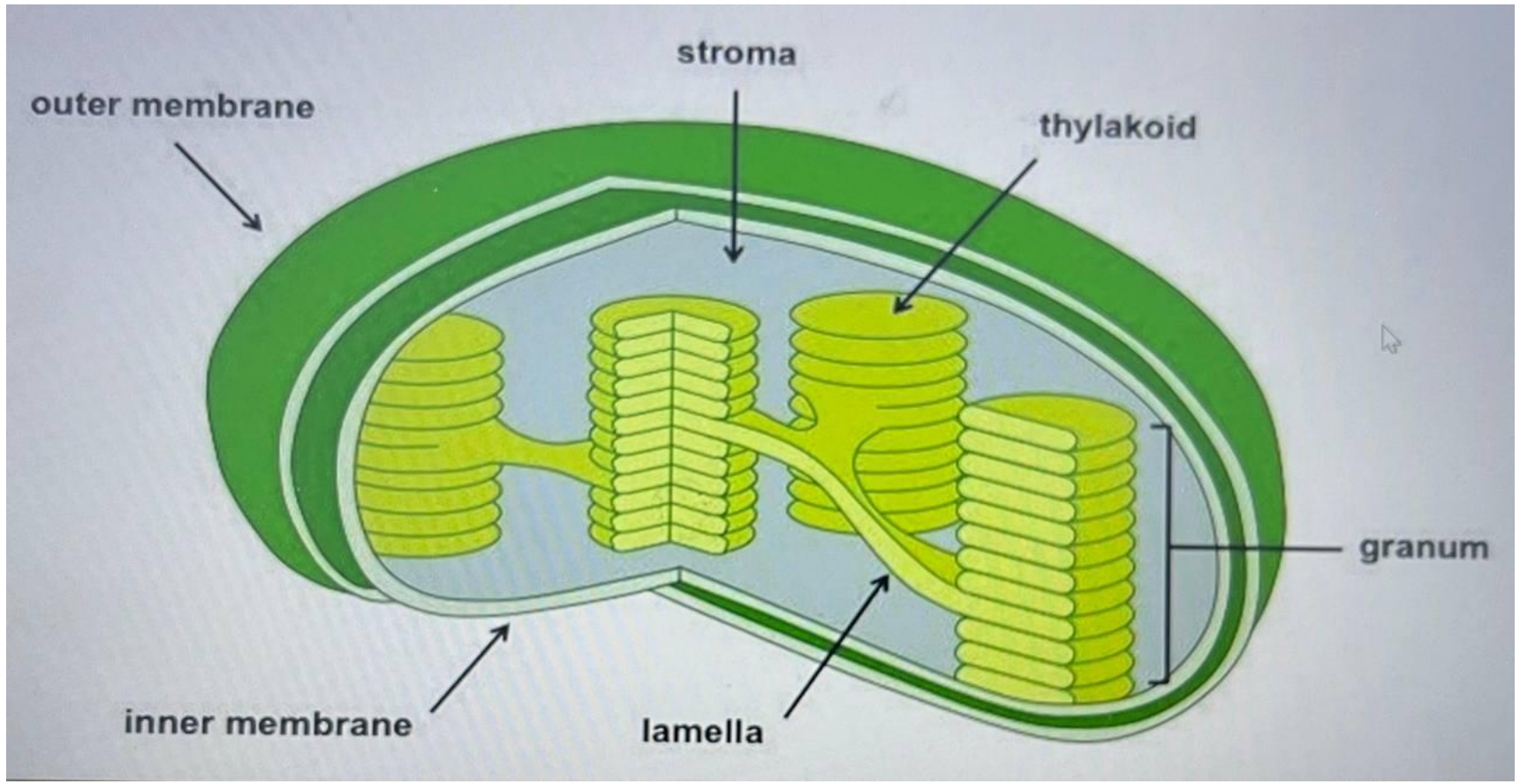


Plastids

They are membrane-bound organelles that have their own DNA. They are necessary to store starch ,to carry out the process of photosynthesis. It is also used in the synthesis of many molecules which form the building blocks of the cell




Golgi apparatus
chloroplast
endoplasmic reticulum
nucleus
mitochondrion
cell wall
central vacuole
cytoplasm


stroma
outer membrane
thylakoid
granum
inner membrane
lamella

Central Vacuole

- It occupies around 30% of the cell's volume in a mature plant cell. Tonoplast is a membrane that surrounds central vacuole. The vital function of central vacuole regulate turgor pressure in the plant cell, helping maintain cell support and shape.
- The central vacuole consists of mixture of salts, enzymes, and other substances.

Golgi Apparatus

- They are found in all eukaryotic cells which are involved in distributing synthesized macromolecules to various parts of the cell. The vital function of Golgi apparatus Modification, packaging, and transport of proteins and lipids.

Ribosomes

- They are the smallest membrane-bound organelles which comprise RNA and protein.They are the sites for protein synthesis, hence, also referred to as the protein factories of the cell.

Mitochondria

They are the double-membraned organelles found in the cytoplasm of all eukaryotic cells. They provide energy by breaking down carbohydrate and sugar molecules, hence they are also referred to as the “Powerhouse of the cell.”

Lysosome

Lysosomes are called as suicidal bags as they hold digestive enzymes in an enclosed membrane. They perform the function of cellular waste disposal by digesting worn-out organelles, food particles and foreign bodies in the cell