

16/5/2021

# THE FUNDAMENTAL UNITS OF LIFE

## EXERCISES

Date \_\_\_\_\_

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1. Make a comparison and write down ways in which plant cells are different from animal cells.

Ans ⇒ Animal Cell

Plant Cell

⇒ Small in size

⇒ larger in comparison

⇒ Cell wall is absent

⇒ Cell wall is present

⇒ Most animal cells have no plastids

⇒ Plastids are present

⇒ Small and temporary vacuoles

⇒ Permanent and large central sap vacuole

⇒ Complex and prominent Golgi apparatus

⇒ Simpler units of Golgi apparatus (dictyosomes)

⇒ Centrosomes and centrioles are present

⇒ Centrosome and centrioles are absent.

2. How is prokaryotic cell different from a eukaryotic cell?

Ans ⇒ Prokaryotic Cell

Eukaryotic Cell

⇒ Size: Generally small (1 - 10  $\mu\text{m}$ )

⇒ Size: Generally large (5 - 100  $\mu\text{m}$ )

⇒ Nuclear Region: undefined and containing nucleic acid and known as nucleoid.

⇒ Nuclear Region: well defined and surrounded by a nuclear membrane.

- ⇒ Chromosome: single
- ⇒ Membrane-bound cell organelles absent
- ⇒ Nucleolus is absent
- ⇒ Simple in structure

- ⇒ More than one chromosome
- ⇒ Membrane-bound cell organelles present.
- ⇒ Nucleolus is present
- ⇒ Complex in structure.

3. What would happen if the plasma membrane ruptures or breaks down.

Ans ⇒ If the plasma membrane ruptures then the cell (Protoplasm) will be exposed to the external environment and as a result the cell may die.

⇒ The cell would also not be able to exchange material from the external environment through diffusion and osmosis.

4. What would happen to life of a cell if there was no Golgi apparatus.

Ans ⇒ If there was no Golgi apparatus in cells then modification and transport of material synthesised near the ER would stop.

⇒ Lysosomes would not be produced and hence all the dead material will be accumulated in the cell and it would eventually die

5. Which organelle is known as the powerhouse of the cell? Why?

Ans ⇒ Mitochondria is known as the powerhouse of the cell because the energy required for various chemical activities needed for life is released by mitochondria in form of ATP.

6. Where do the lipids and proteins constituting the cell membrane get synthesised?

Ans ⇒ The proteins are synthesised by the ribosomes present on rough endoplasmic reticulum.

The lipids are synthesised by ~~the~~ the smooth endoplasmic reticulum.

Both the protein and lipid together help in building the cell membrane, ~~the~~ by the process of membrane biogenesis.

7. How does an Amoeba obtain its food?

Ans ⇒ Amoeba obtains its food by the process of endocytosis.

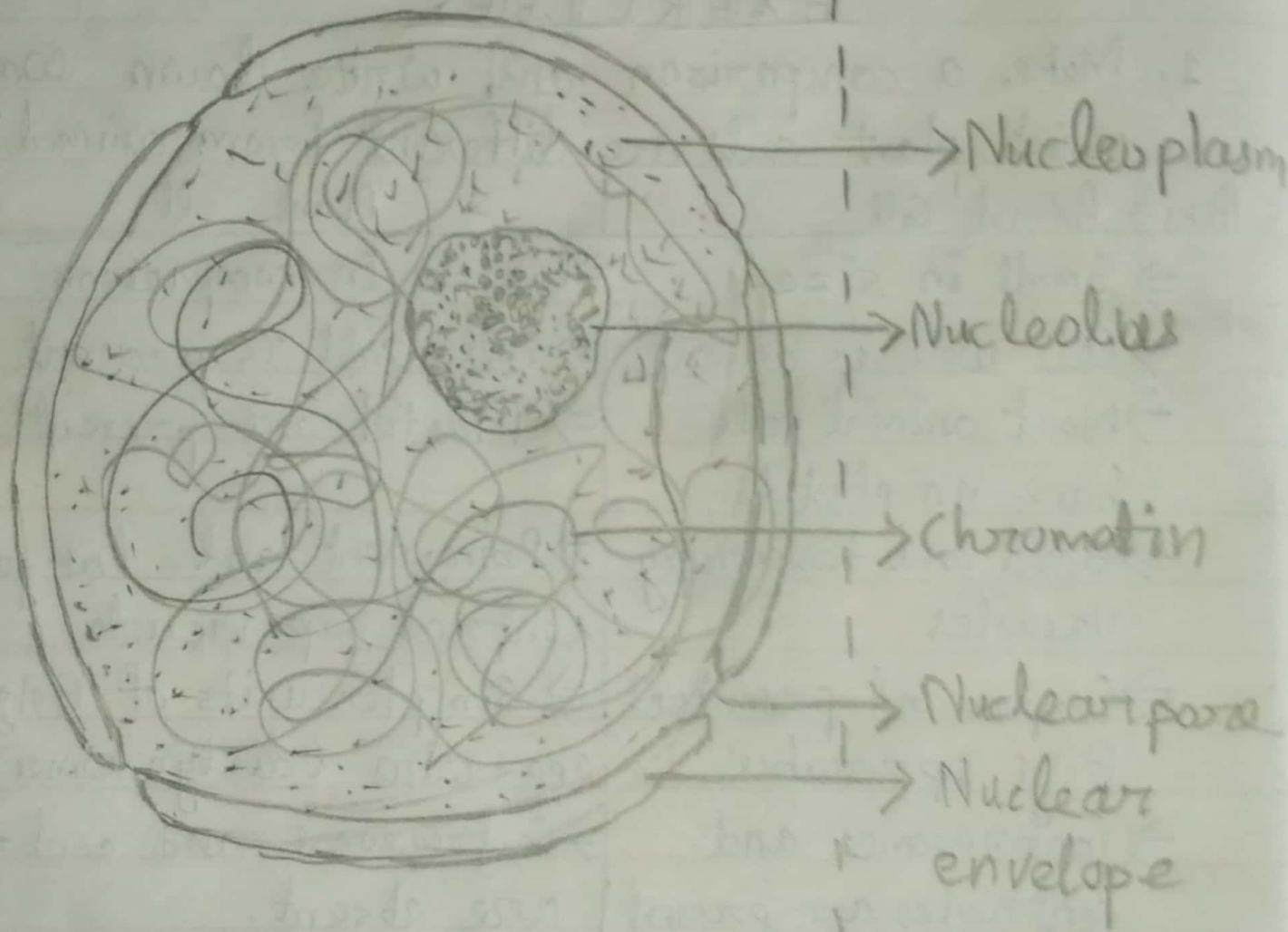
Endocytosis is the process where the flexible cell membrane engulfs its food and other material from its external environment.

8. What is osmosis?

Ans  $\Rightarrow$  Osmosis is the passage of water from a region of high water concentration to a region of low water concentration through a semi-permeable membrane.

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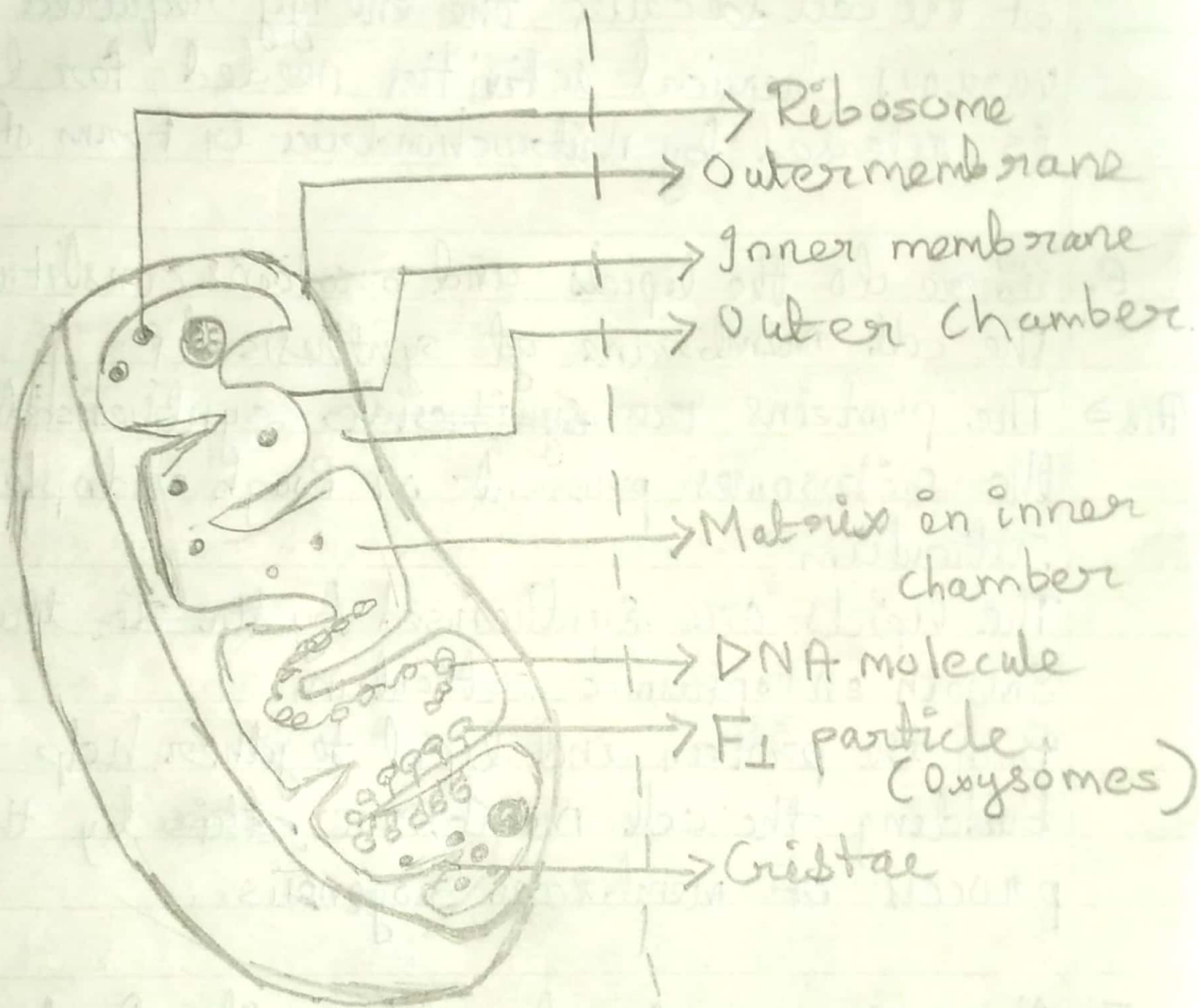
# DIAGRAMS OF ORGANELLES



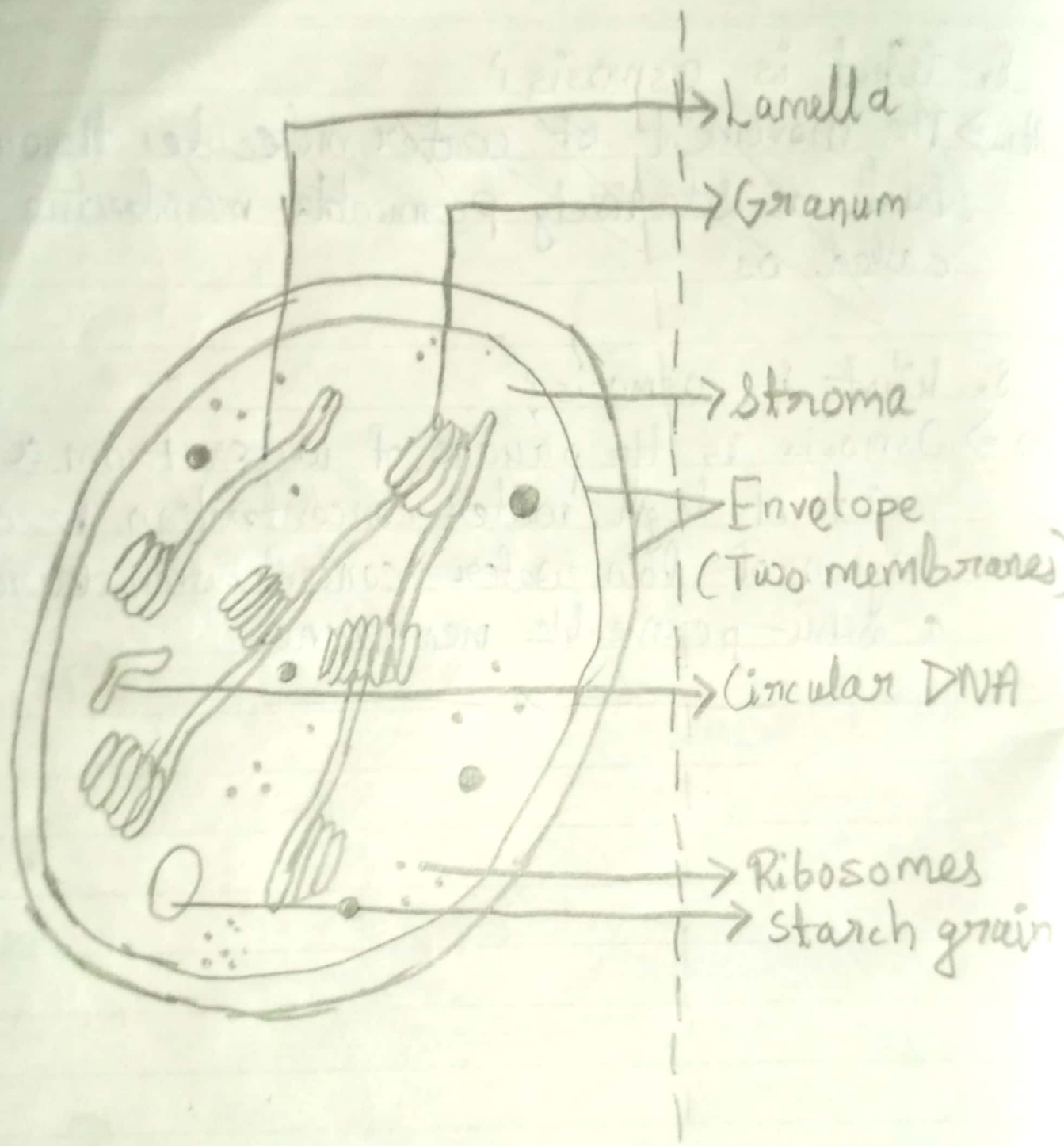
## Nucleus Diagram



GOLGI BODY



# MITROCHONDRIA



# CHLOROPLAST