

Describe cell structure? Write down at least 3 differences between plants and animal cells?

Cell:

- The biological unit is called as cell
- The word cell is derived from latin word called "Cellula" means "small room"

Discovery:

Discovered by Robert Hook

Year: 1665

- Cell is present in all living organisms.

⚡

- The basic structural and functional unit of life is called as cell.

Cell structure:

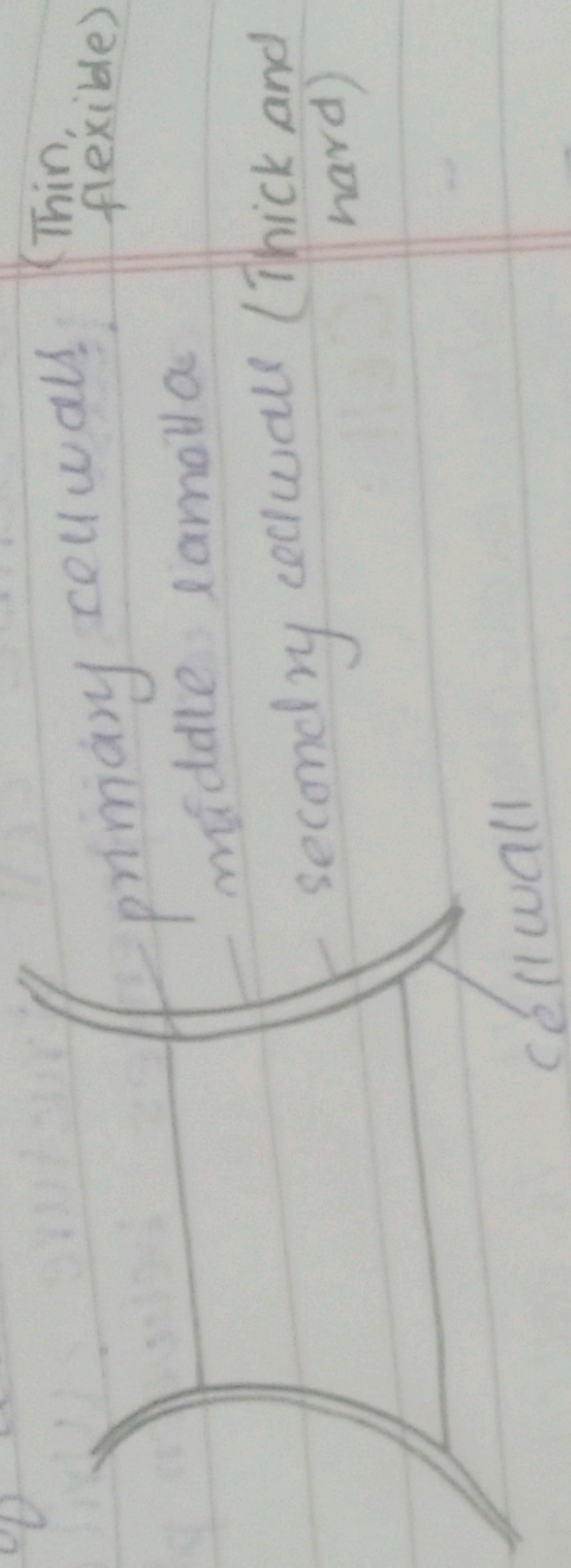
cell consists of multiple cellular organelles and sub cellular organized.

- | | | |
|---|-----------------|-------------|
| • cell wall | • cell membrane | • cytoplasm |
| • Nucleus | • mitochondria | • Ribosome |
| • Golgi complex | • centrioles | • plastids |
| • N ae Endoplasmic reticulum | | |

1) **Cell wall:**

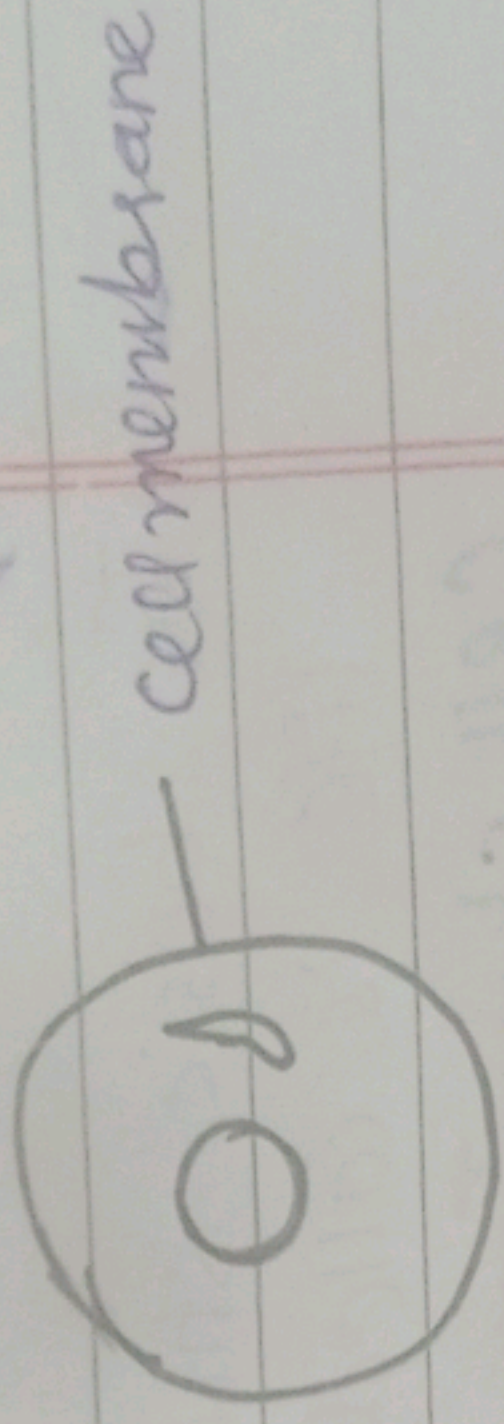
- The outer most layer of cell.
- Absent in animal, but present in plant's cell.
- It provide structural, mechanical and support to cell.
- It consists of 3 layer i.e middle, inner, outer layer.
- Also provide passage for the nutrients and waste materials.

Made up of cellulose mainly.



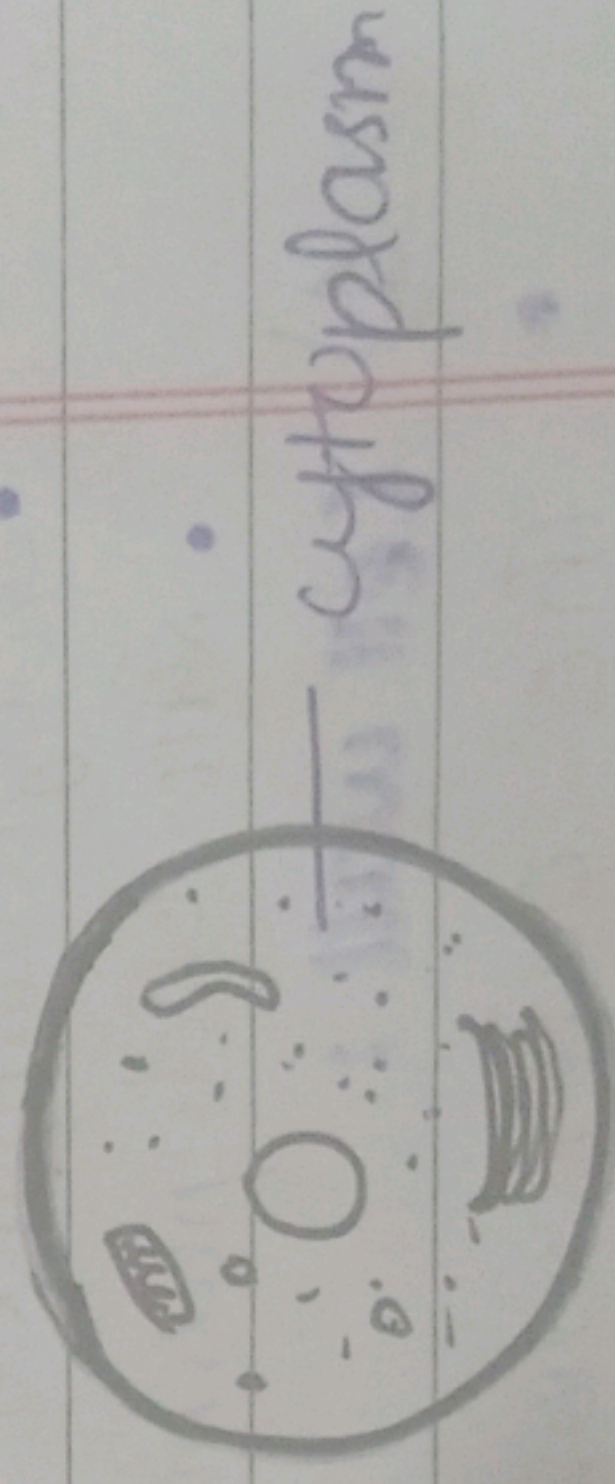
Cell membrane:

- Cell membrane present in animal cell as outer layer.
- But present after cell wall in plants.
- Made up of proteins and fats.
- For cell membrane a model was proposed, name --
- as fluid mosaic model.



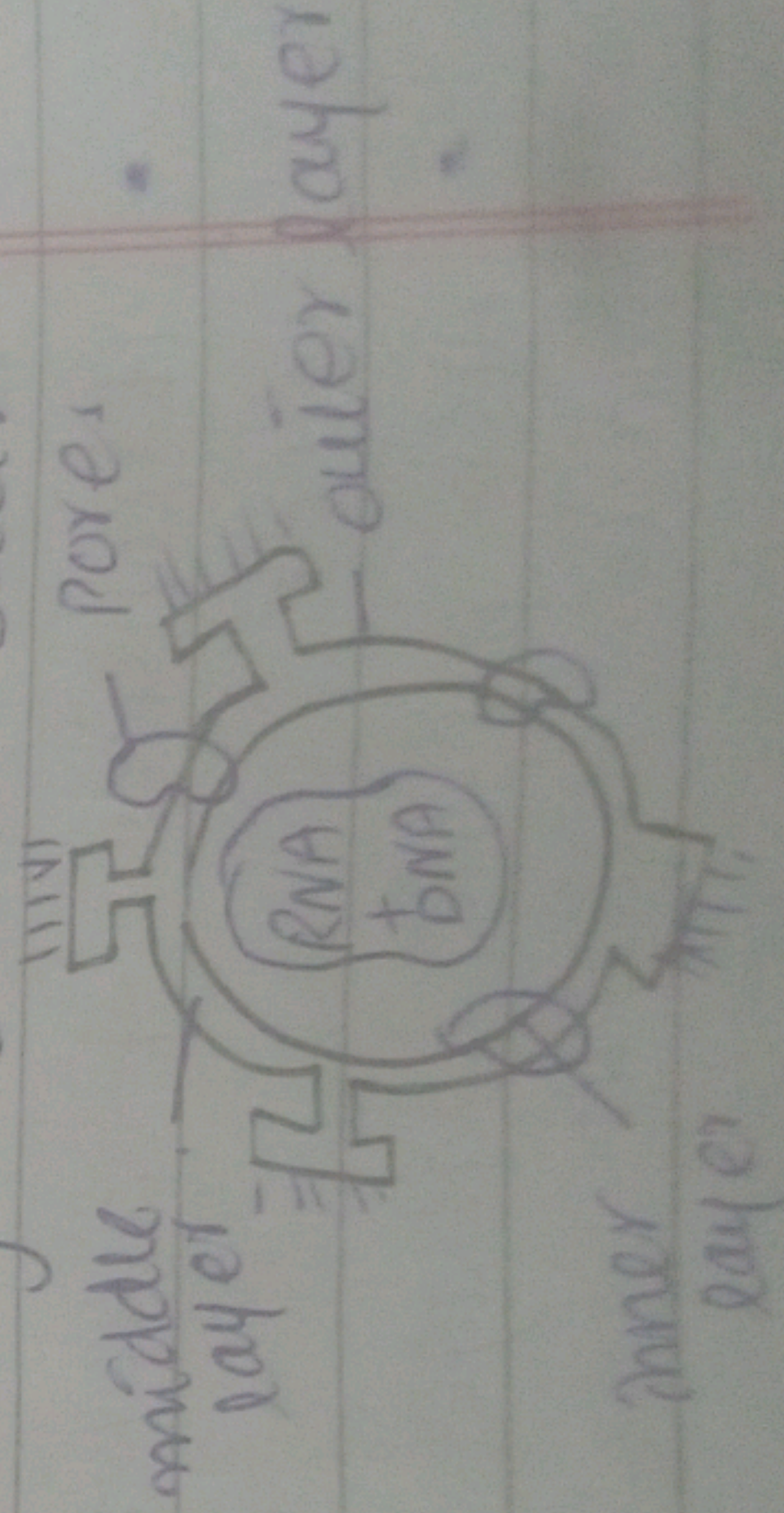
3) cytoplasm:

- fluid fill region present between cell membrane and nuclear membrane.
- consists of 90% H₂O and 10% of nutrients.
- called as "landlord" of the cell.
- store house of cell.



4) Nucleus

- Double membrane structure having 3 layer.
- Formation of genetic material takes place in it.
- Porous, so nuclear exchange overall occurs.

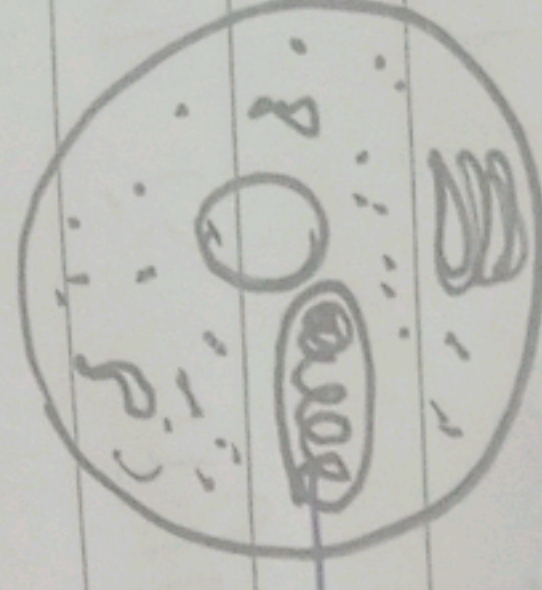


5) Ribosomes :

- They are roughly spherical in shape and granules present in Nucleus.
- It help in protein synthesis.

6) Mitochondria :

- It is double membraneous structure.
- self replicating organelles.
- called as "Power house of the cell".
- "Energy currency of cell".
- help in cellular respiration as result of which ATP synthesis done.



mitochondria

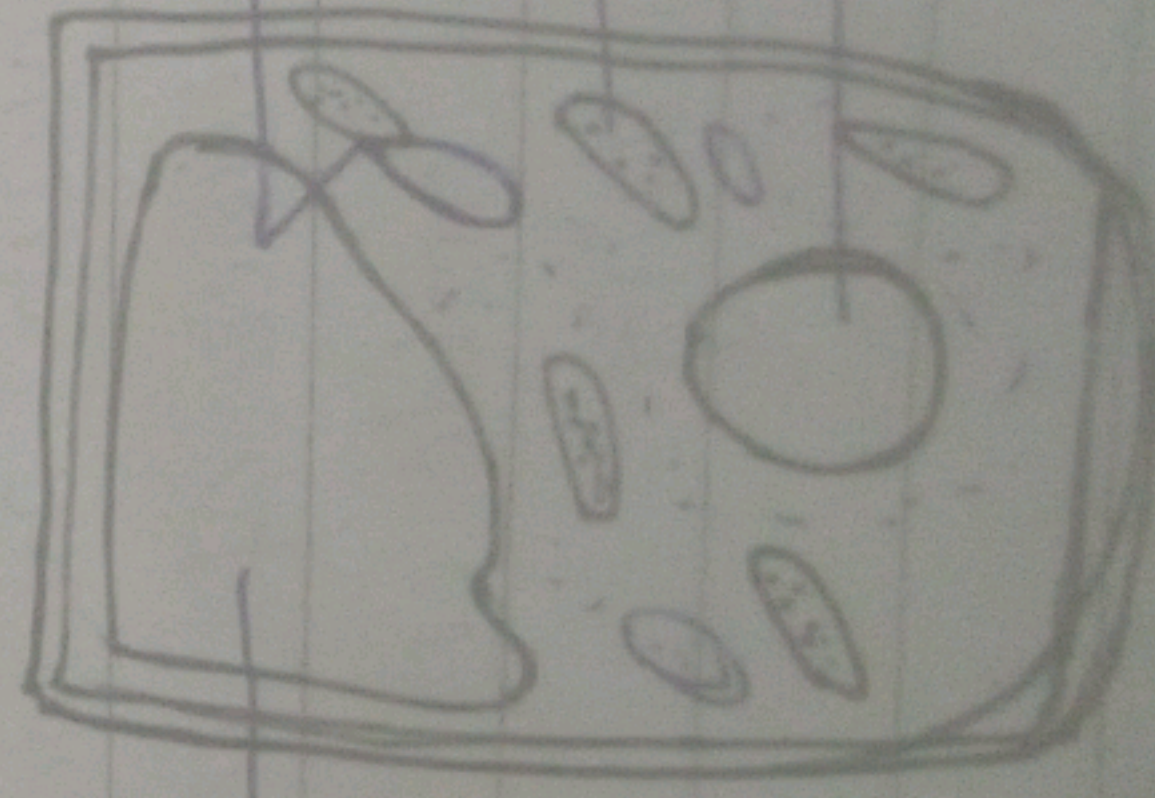
Plant cell

① Plant cell have cell wall

② Plant cell consists of plastids

③ Plant cell have large centrioles

④ Nucleus is present at side of cell



vacuoles

centriole

plastids (chloroplast)

nucleus

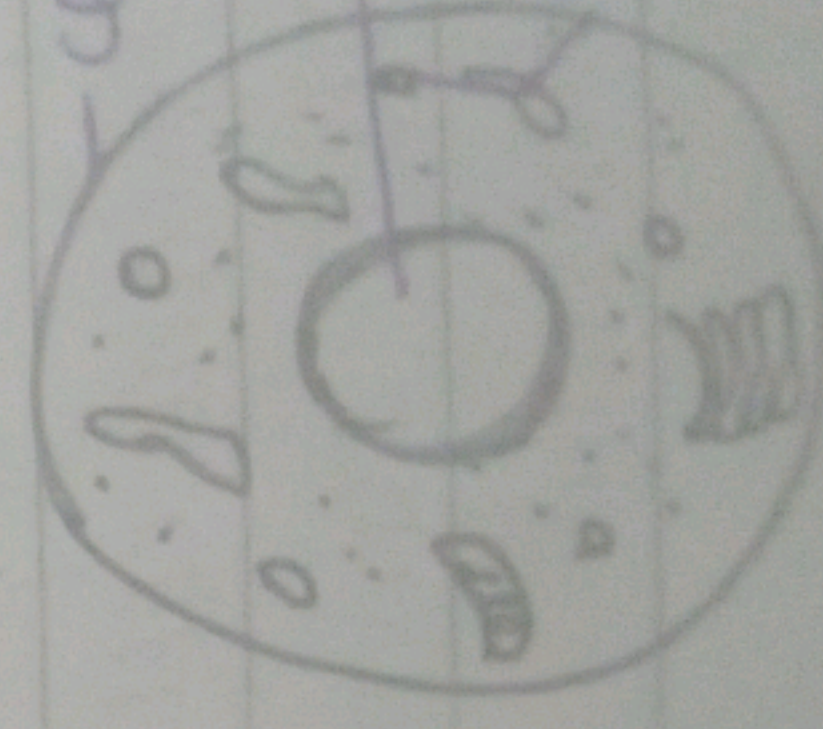
Animal cell

Animal cell donot have cell wall.

Animal cell donot have plastids.

Animal cell have small centrioles.

Nucleus is present in centre of cell.



cell membrane

Nucleus

vacuoles

Q2 Explain the differences among cell wall and cell membrane wrt function and structure?

Cell wall:

- 1) The outer most layer of plant cell is called cell wall
- 2) cell wall is permeable
- 3) cell wall is rigid
- 4) cell wall is made up of cellulose
- 5) Cell wall is thick and porous in nature

Cell membrane

The outermost layer of animal cell is called cell membrane

cell membrane is selectively permeable.

cell membrane is flexible

cell membrane is made up of proteins and fats

cell membrane is thin and made up of phospholipid bilayer.

Functional differences:

- | | |
|---|--|
| <ol style="list-style-type: none"> 1) cell wall provide support to the plant cell. 2) cell wall also provide shape and protection to plant cell
It resists osmotic pressure | <p>cell membrane helps in regulating the movement of substances in and out</p> <p>cell membrane maintain internal balance of cell and enable cell signaling.</p> |
|---|--|

Q3 What

DNA

- DNA

Dis

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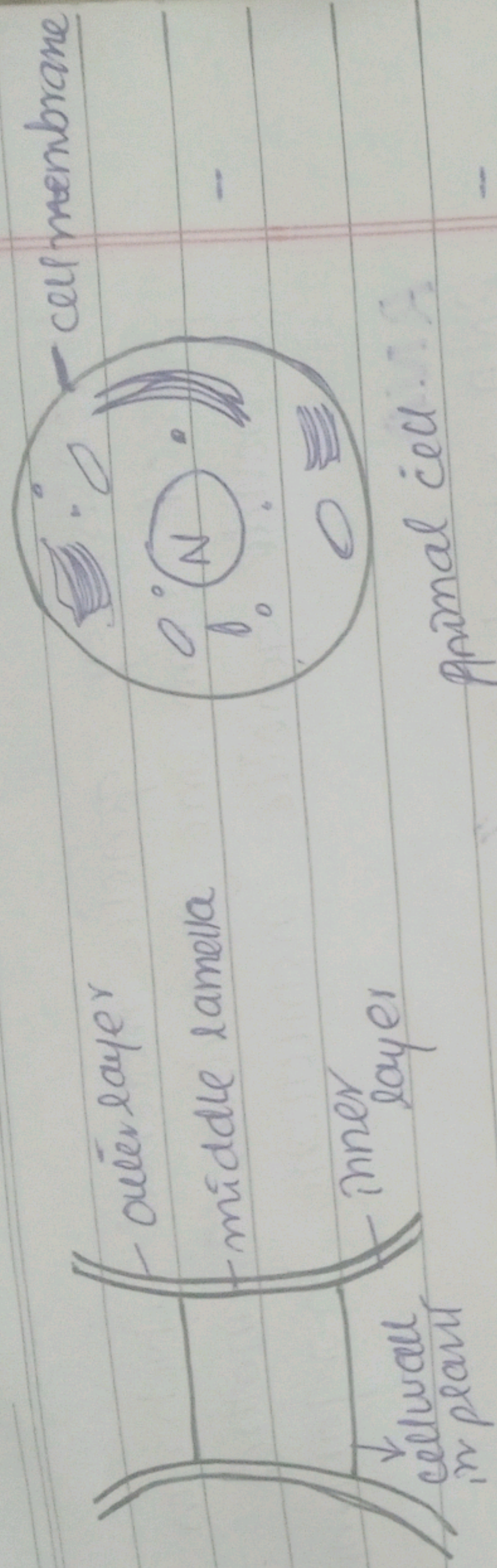
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Date: _____



Q3

What do you understand by DNA and RNA?

DNA:

- DNA stands for Deoxyribonucleic acid

Discovery:

- Discovered by Watson and Crick

Structure:

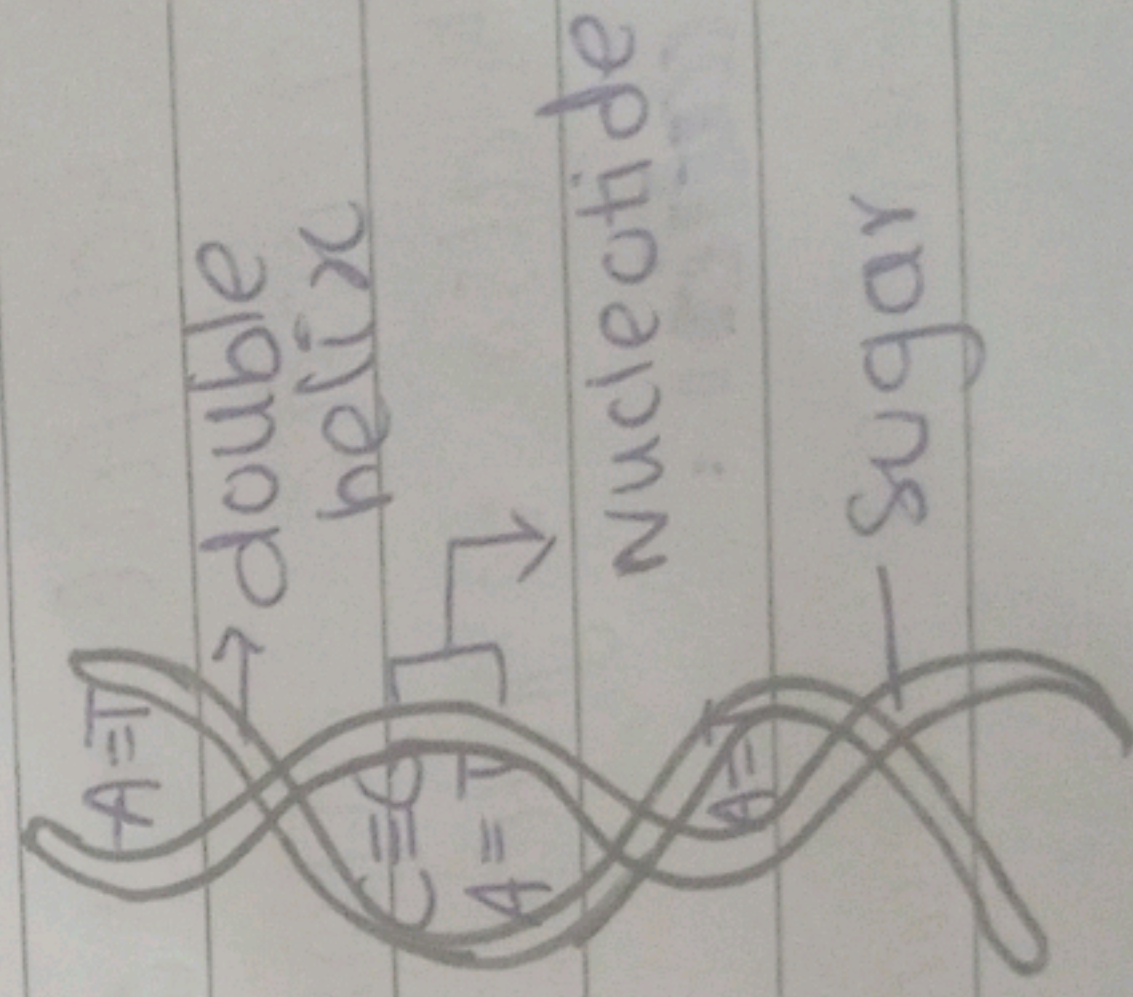
- DNA is double helix structure

- DNA consists of 3 things (basic unit)

- Nucleotides phosphate, sugar

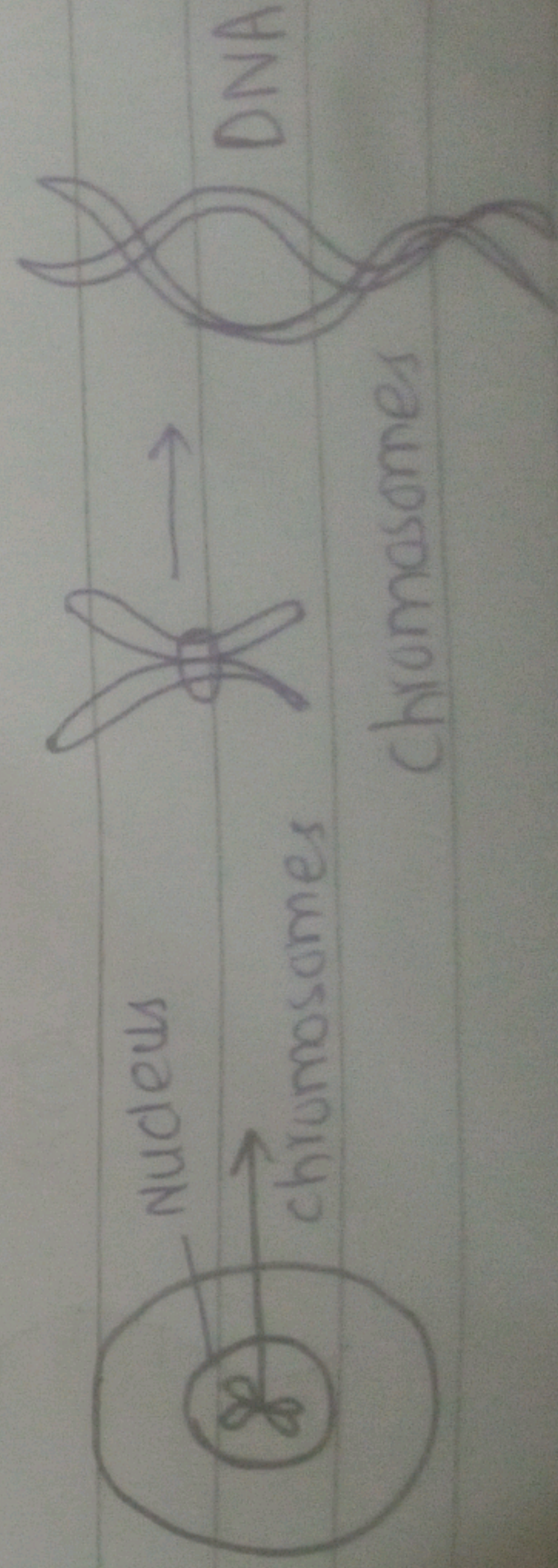
- Nucleotide are present in pair form

$A = T$ $C \equiv G$



location:

- DNA is present in nucleus in organized structure called DNA chromosomes.



- It consists of genetic material which can be passed from one generation to another.
- It provides genetic instructions for organisms.

RNA:

- RNA stands for "ribonucleic acid".
- **Discovery:** Friedrich Miescher.
- **Structure:**
 - RNA is single stranded.
 - RNA is made up of (polymer) nucleotides, each having ribose sugar, phosphate group and nitrogenous bases.
 - It consists of $A = T, C \equiv U$.
 - RNA folds into 3D complex due to interaction between different molecules.

function:

- It is helpful and essential for translating the genetic information from DNA into proteins.
- It also regulates gene expression.

location:

- Present in ribosomes.

