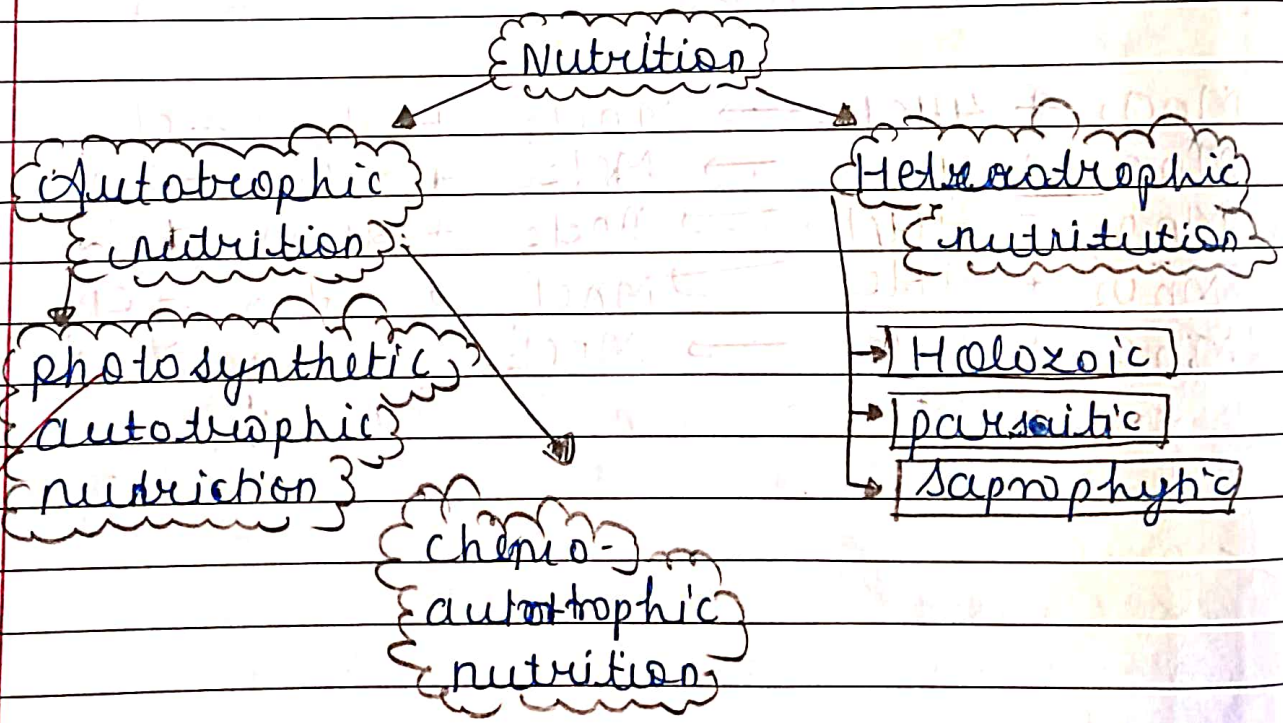
Date :

18/4/24

Chapter No : 5
Life Processes

* The basic and essential activity performed by a living organism to sustain and maintain life is called life process
There are four bais life processes
i] Nutrition
ii] Respiration
iii] Transportation
iv] Excretion

* Nutrition:
The process of obtaining and utilizing the food is called as nutrition



* Importance of Food:
- Energy
- growth & development
- new cell and tissue formation

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* Autotrophic nutrition :
here 'auto' means self and 'trophic' means nourishment
The organisms which prepare their own food are called autotrophs and this mode of nutrition is called autotrophic nutrition

- Photoautotrophic nutrition
  - preparing food by their own by using the light energy (sunlight) is called photoautotrophic nutrition
    - eg- plants
    - cyanobacteria
- Chemo-autotrophic nutrition
  - type of autotrophic nutrition where organism prepare their own food using chemical energy are called chemo-autotrophic nutrition
    - eg.- nitrosomanas
    - nitrobacter
    - purple-sulphen Bacter

* Carnivorous plant shows mixotrophic nutrition [Both autotrophic and Heterotrophic nutrition partially]
eg- ugleria
cuscuta
venus flytrap

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* Heterotrophic nutrition *

The organism which do not prepare their own food and are dependent on others for food these organism are called Heterotrophs and this mode of nutrition is known as Heterotrophic nutrition.

- Holozoic
  - a type of Heterotrophic nutrition where organism digest food in their own body
- parasites
  - an organism that lives on host organism at get it food
- saprophyte
  - feed on dead and decaying matter digest food externally

* Nuteition in plants.

- Nutrition in plants is charastenised by Autotrophic nutrition.
- plant need/takes light energy, CO_2 from atmosphere and H_2O from soil and chrolophyll to make food in the form of glucose (carbohydrates)

$$C_6H_{12}O_6$$

plants does the photosynthesis for generation of food

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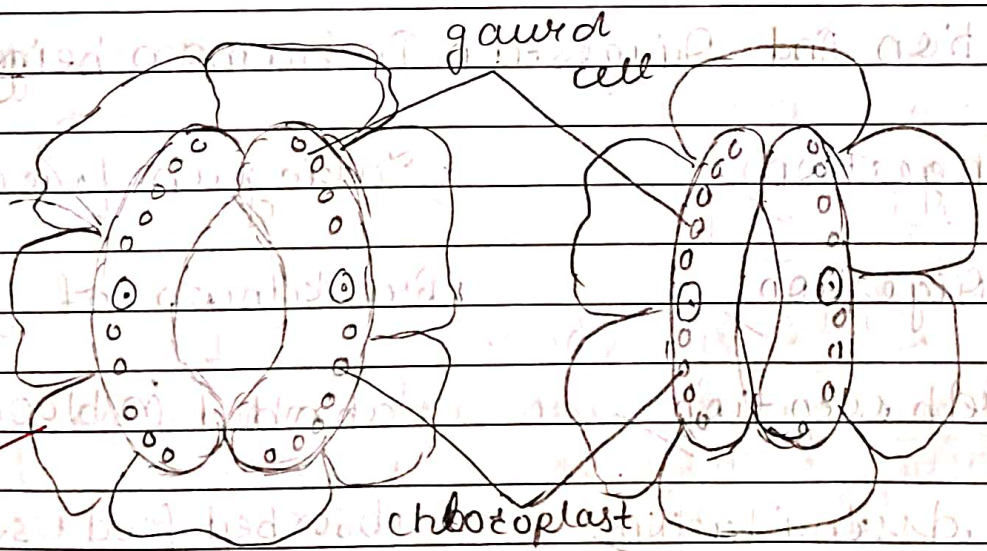
* what actually happens in photosynthesis.
- Absorption of light energy by chlorophyll
- conversion of light energy to chemical energy and splitting of water Molecule into hydrogen and oxygen
- Reduction of carbon dioxide to carbohydrates

* Role of stomata in photosynthesis?
- The role of stomata in photosynthesis is exchange of gases and Transpiration
- mainly situated at lower epidermis of leaf.
- supported by gaurd cell
- when water flow in gaurd cell. gaurd cell swell help in opening of stomata
- when water flow out gaurd cell shrink result in stomatal pore close.



opened stomata

closed stomata

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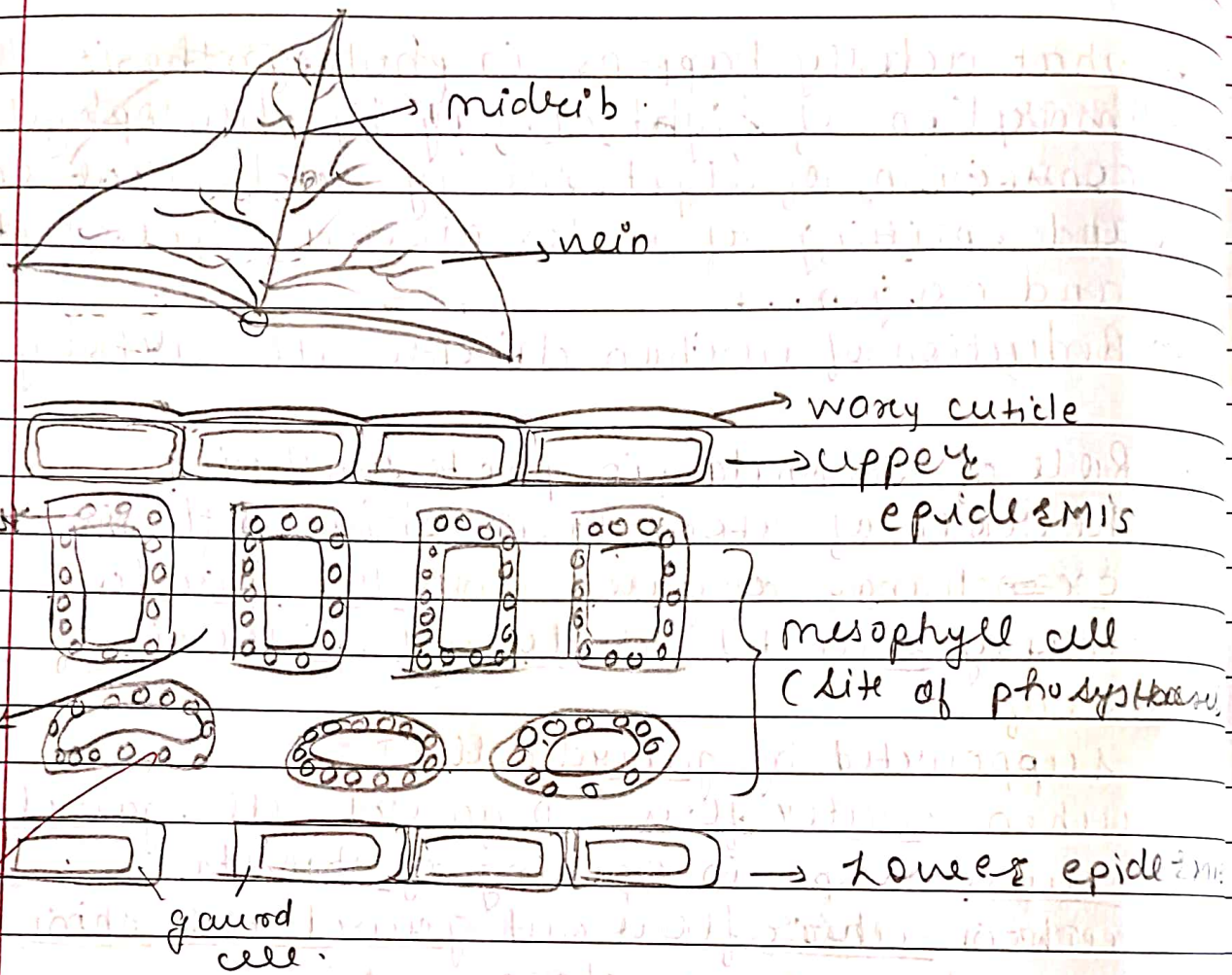

* Nutrition And Digestion In human beings *

Ingestion	Taking in food
Digestion	Breakdown of food
Absorption	absorbed in blood
Assimilation	absorbed food used in energy
Egestion	removal of unabsorbed food.

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Human digested system

alimentary canal (mouth to anus)

- mouth
- oral cavity
- oesophagus
- stomach
- small intestine
- Large intestine
- Anus

associated glands

- Salivary glands
- Liver
- Pancreas.

- mouth also called as Buccal cavity, chewing and crushing of food & salivary amylas convert starch to Maltose

Tongue : It is a highly muscular sensory organ present at the floor of buccal cavity and helps to mix Saliva with food.

Teeth: Teeth are used for crushing the food.

- Oesophagus - from mouth food is taken to stomach through oesophagus or food pipe.

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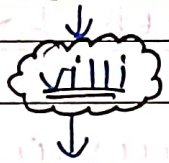
- **stomach**: Muscular wall of stomach help in mixing the food thoroughly with more digestive juices.
gastric glands present in the walls of stomach release hydrochloric acid (HCl) (it creats an acidic medium to facilitate the action of enzyme pepsin)
mucus protect the inner lining of stomach
pepsin Helps in protine digestion
The exit of food from stomach into small intestine is regulated by sphincter muscles.

- **small intestine.**
5-7 meter long
Site of final digestion and absorption of food
secrets intestinal juice (succus entericus)
digestion carbohydrate ⟶ glucose
digestion protine ⟶ amino acids
digestion fats ⟶ fatty acid + Glycerol
absorption of food



- finger like projection.
- increase the surface area of absorption
- Richly supplied with blood vessel which take the absorbed food to each and every cell of body
- food is utilised for obtaining energy and repair old tissue.

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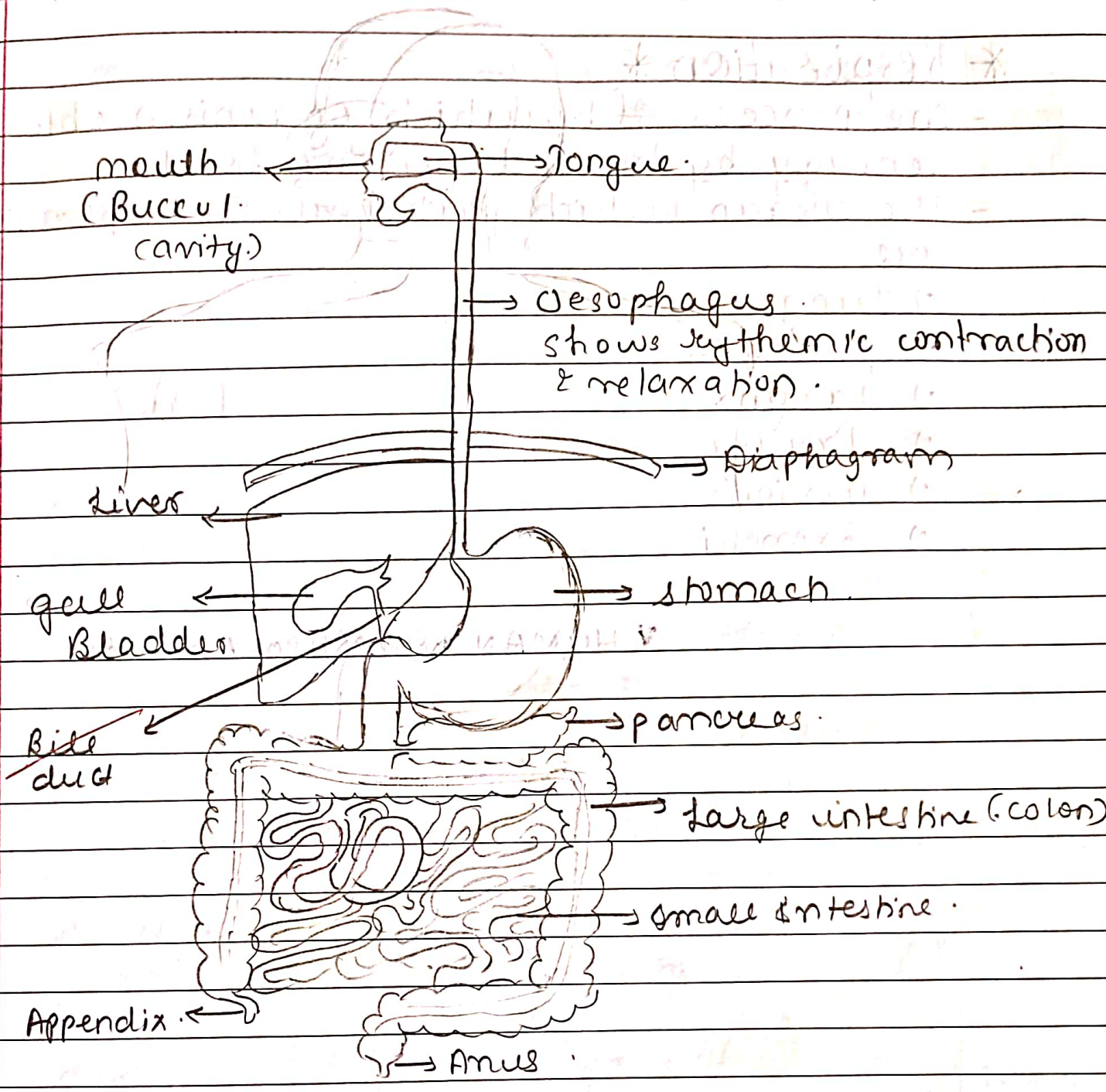


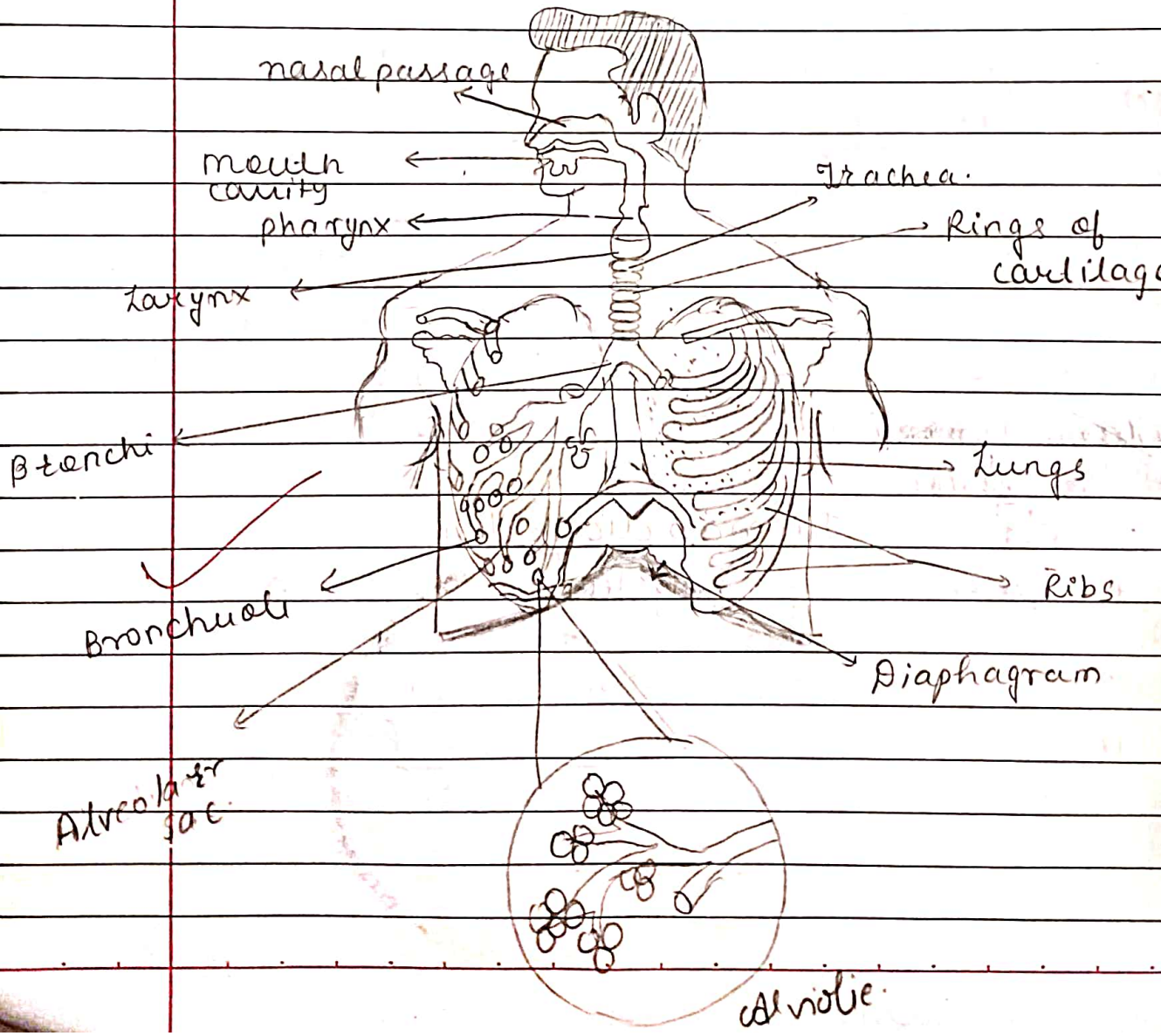
human digestive
system.

Date :

* Respiration *

- The process by which organism obtain energy by breakdown of food.
- The organ which participate in Respiration are
  - Lungs
  - pharynx
  - Larynx
  - Trachea
  - Alvielie
  - Bronchi

HUMAN RESPIRATORY SYSTEM



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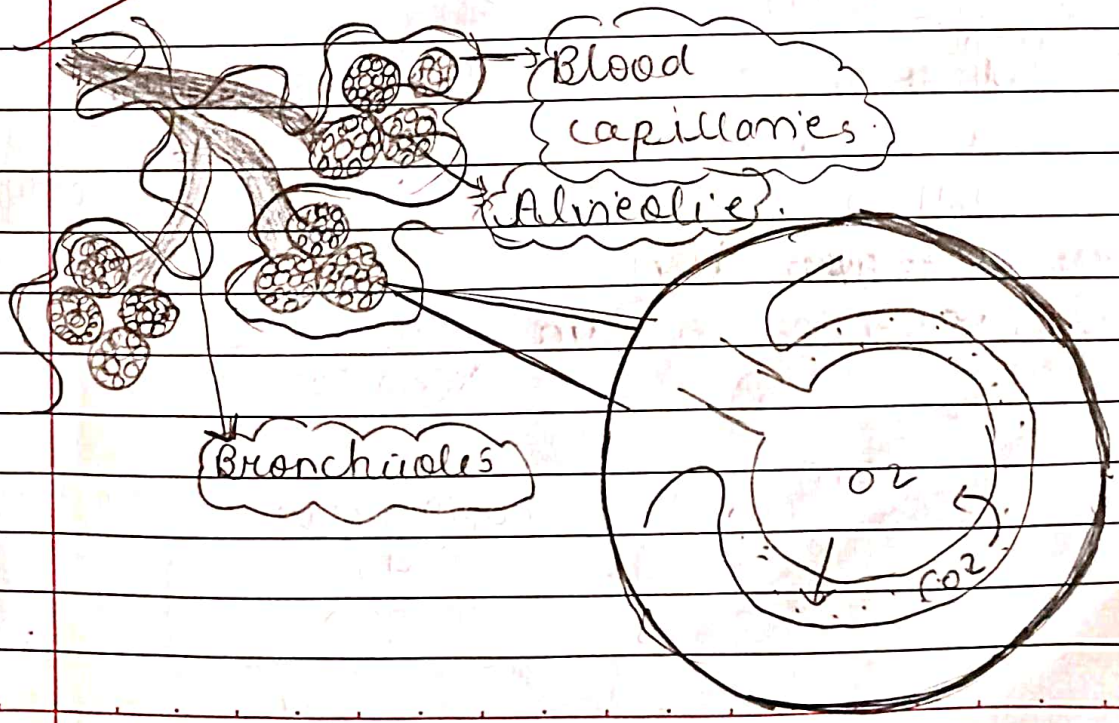
- Human respiratory system is network of organ and tissue that help us to breath The primary function of this system is to introduce oxygen into the body. and exhale carbon dioxide from Body
- Epiglottis flaplike cartilage which cover wind pipe while swallowing pipe
- helps us in the movement of air in and out of the body

- Lungs are main respiratory organs.

- The trachea (windpipe) is a tube that connect the pharynx and Laynx to the Lungs allowing the passage of air

- The trachea divides into right and left bronchi and enters into lungs They divide futhur ~~ear~~ and end in small air ~~sac~~ sacs called alveoli



* Transportation *

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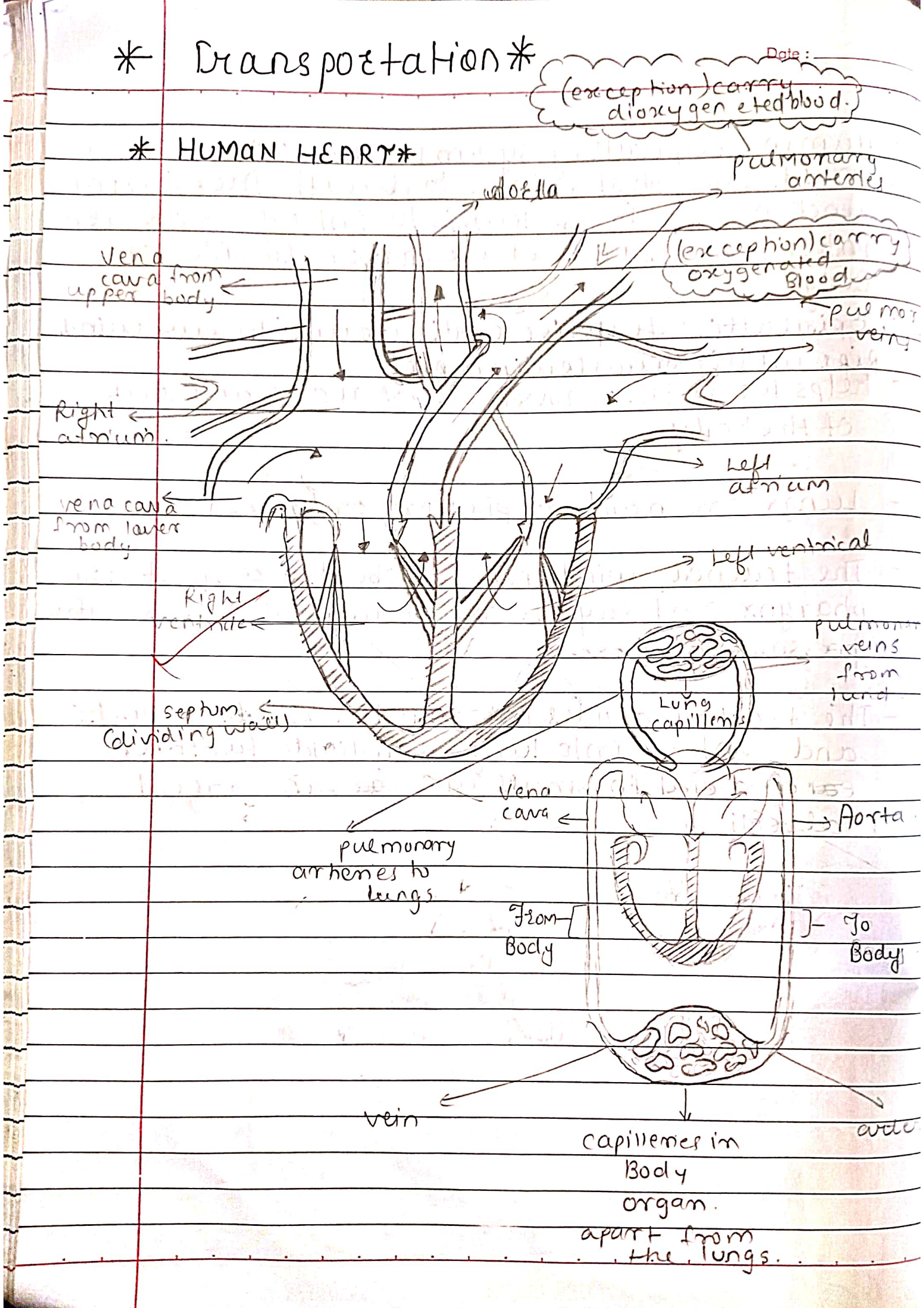
(exception) carry deoxygenated blood.

* HUMAN HEART *



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Function of our heart
- muscular organ
- Located in chest cavity
- As big as fist
- Act as a pumping organ
- made from involuntary cardiac muscles.

- Pulmonary ~~atery~~ artery : deoxygenated blood.
  main vein (vena cava) : deoxygenated blood.

- Pulmonary veins : oxygented blood.
  main atery (Aorta) : oxygeneted blood.
- Human beings → Double circulation
  - pulmonary circulation
  - System circulation.

* LMPHATIC SYSTEM *
- Drains and cleans the Interstitial fluid
- provide immunological defence
- Absorb excess fat from Digestive System

Date :

- Arteries:
Arteries take blood away from blood and carries oxygenated blood with high pressure and has thick and elastic walls and @ valves are absent. distributes blood pumped by blood which carries O2 and nutrients

- Veins:
~~A~~ veins take blood towards heart and carries deoxygenated blood with low pressure and has thin and non-elastic wall and valves are present to prevent backflow of blood and Returns blood to heart carries carbon-dioxide and other waste.

- Capillaries
- helps in exchange of substances
- B carries Both oxygenated and deoxygenated
- with medium pressure
- one celled- thick wall (very thin)
- valves are absent

- largest Artery - Aorta
- largest vein - vena cava.

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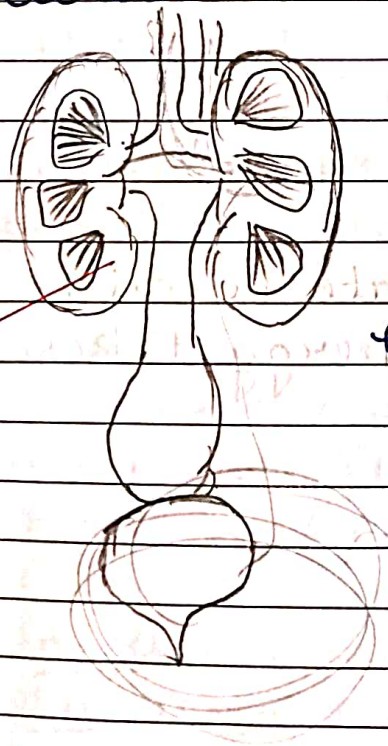
* Components of Blood:
  - plasma
  - RBC
  - WBC
  - Platelets

RBC ⟶ Erythrocytes
WBC ⟶ Leucocytes
Platlets ⟶ Thrombocytes. ⟶ Helps in clotting of Blood where injured.

* Excretion * harmful.
The removal of metabolic waste is called ~~Excretion~~ Excretion carried out by pair of kidney, ureter, urinary bladder & urethra



urine formation

Glomerular filtration

tubular secretion.

Selective reabsorption.

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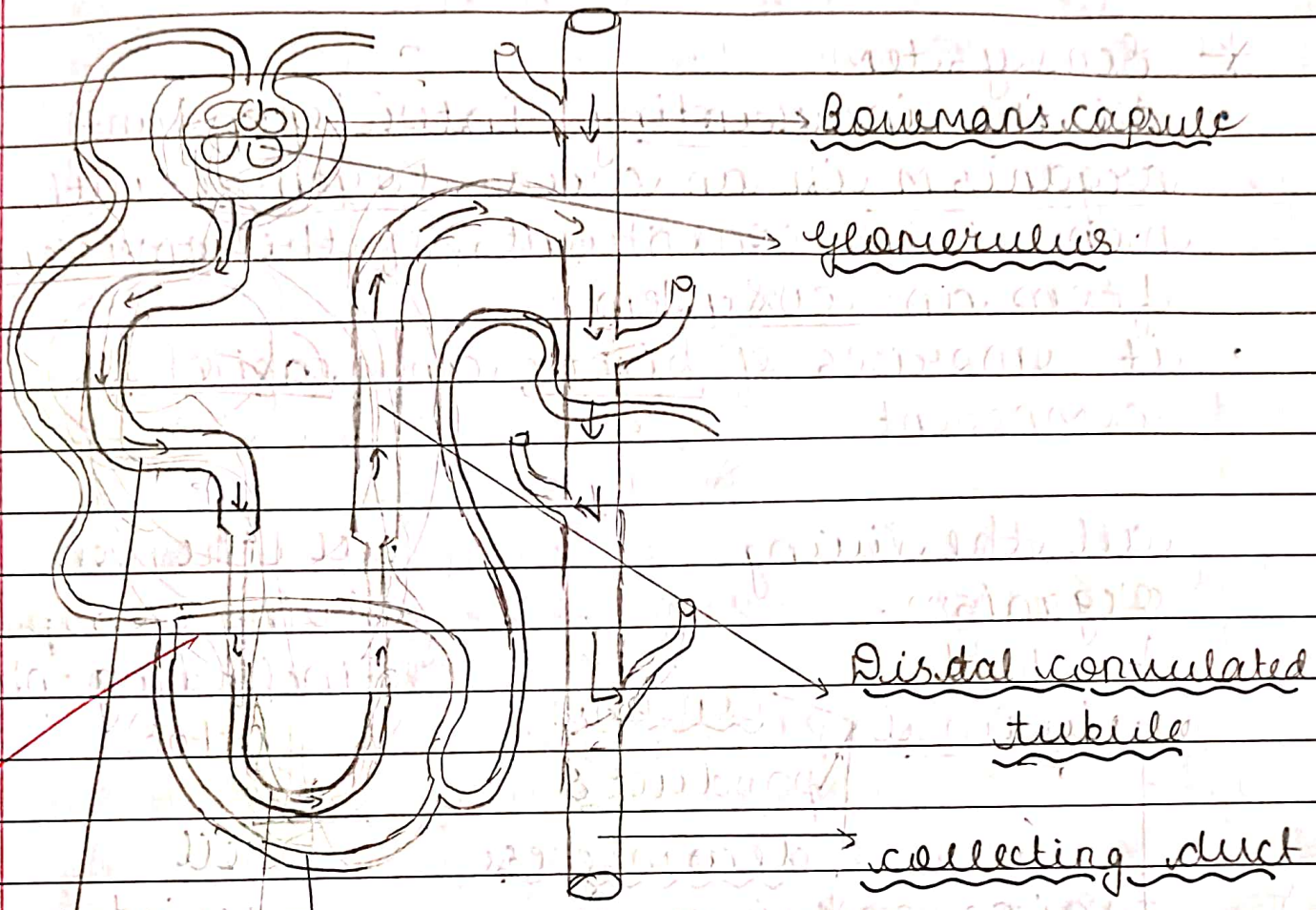
- Structure of nephron :



Good
Nice
11/6/24