

NAME: _____

STD: _____

ROLL NO: 47

YOUVA

SUBJECT: Anatomy

INDEX

SR NO.	EXPERIMENT	PAGE	DATE OF EXPERIMENT	DATE OF SUBMISSION	REMARKS
1.	The Cell	02			
2.	Mitochondria	03			
3.	Endoplasmic Reticulum	04			
4.	Nervous system	05			
5.	Central Nervous system	06			
6.	Peripheral Nervous system.	07			
7.	Neuron	08			
8.	skin	09			
9.	Nail	10			
10.	Hair	11			
11.	Ear	12			
12.	Ear ossicles	13			
13.	Olfactory mucosa	14			
14.	Tongue	15			
15.	Heart	16			
16.	Urinary system	17			
17.	Adrenal Gland	18			
18.	Digestive system	19			
19.	stomach	20			
20.	Liver	21			
21.	Large Intestine	22			
22.	small Intestine	23			

SR. NO.	EXPERIMENT	PAGE	DATE OF EXPERIMENT	DATE OF SUBMISSION	REMARKS
23.	Pancreas	24			
24.	Gall bladder	25			
25.	Respiratory system.	26			
26.	Lungs	27			
27.	Male Reproductive system.	28			
28.	Testis	29			
29.	Breast	30			
30.	Ovary	31			
31.	Female Reproductive system	32			
32.	Bone.	33			

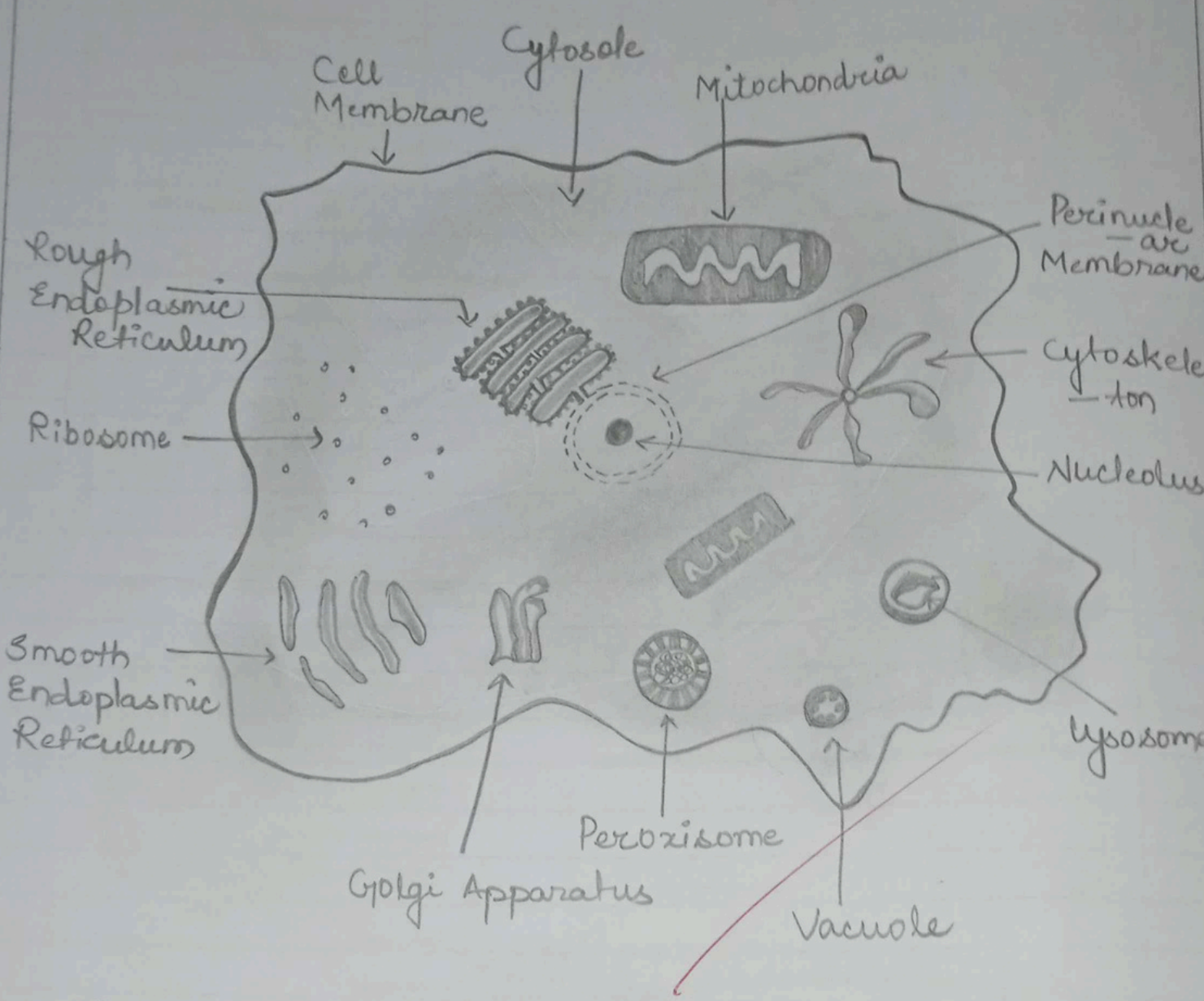


Fig : - Cell

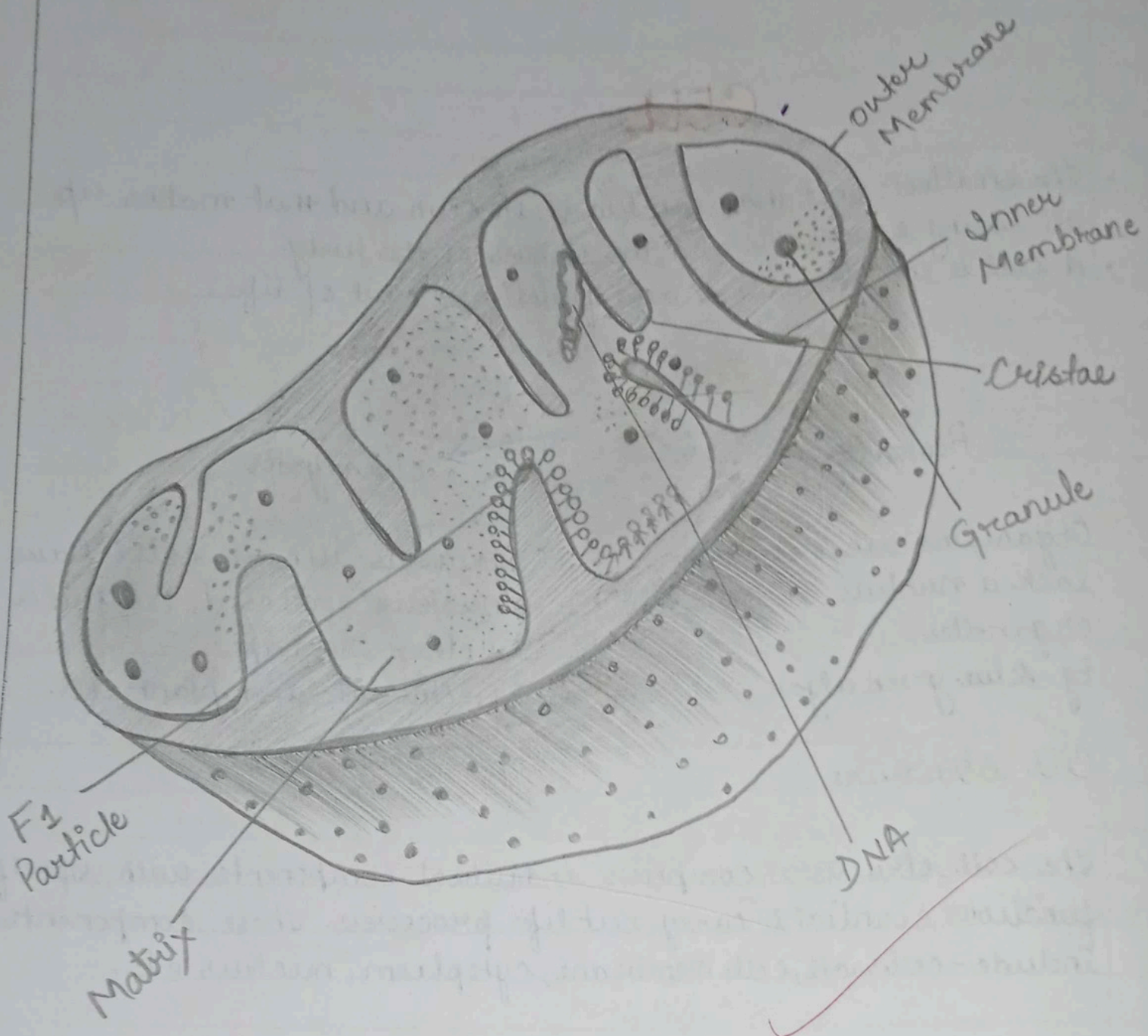


Fig: - Mitochondria

MITOCHONDRIA

- Mitochondria are membrane-bound cell organelles that generate most of the chemical energy needed to power the cell's biochemical reactions.
- These are oval structures and more numerous in metabolically active cells.
- The mitochondria consists of two layers of the membrane and the matrix.
- The outer membrane is smooth and the inner is folded into incomplete septa called cristae.
- Matrix of the mitochondria contains enzymes required in kreb cycle by which products of carbohydrates, fat and protein metabolism are oxidized to produce energy which is stored in the form of adenosine triphosphate (ATP).

Function of Mitochondria.

- Major sites for aerobic respiration.
- In addition to their role as power generating units, the mitochondria may have a role in synthesizing proteins since they also possess DNA and ribosomes.
- As mitochondria synthesis energy rich compound ATP, they are also known as power house of the cell.
- Regulate cellular Metabolism.

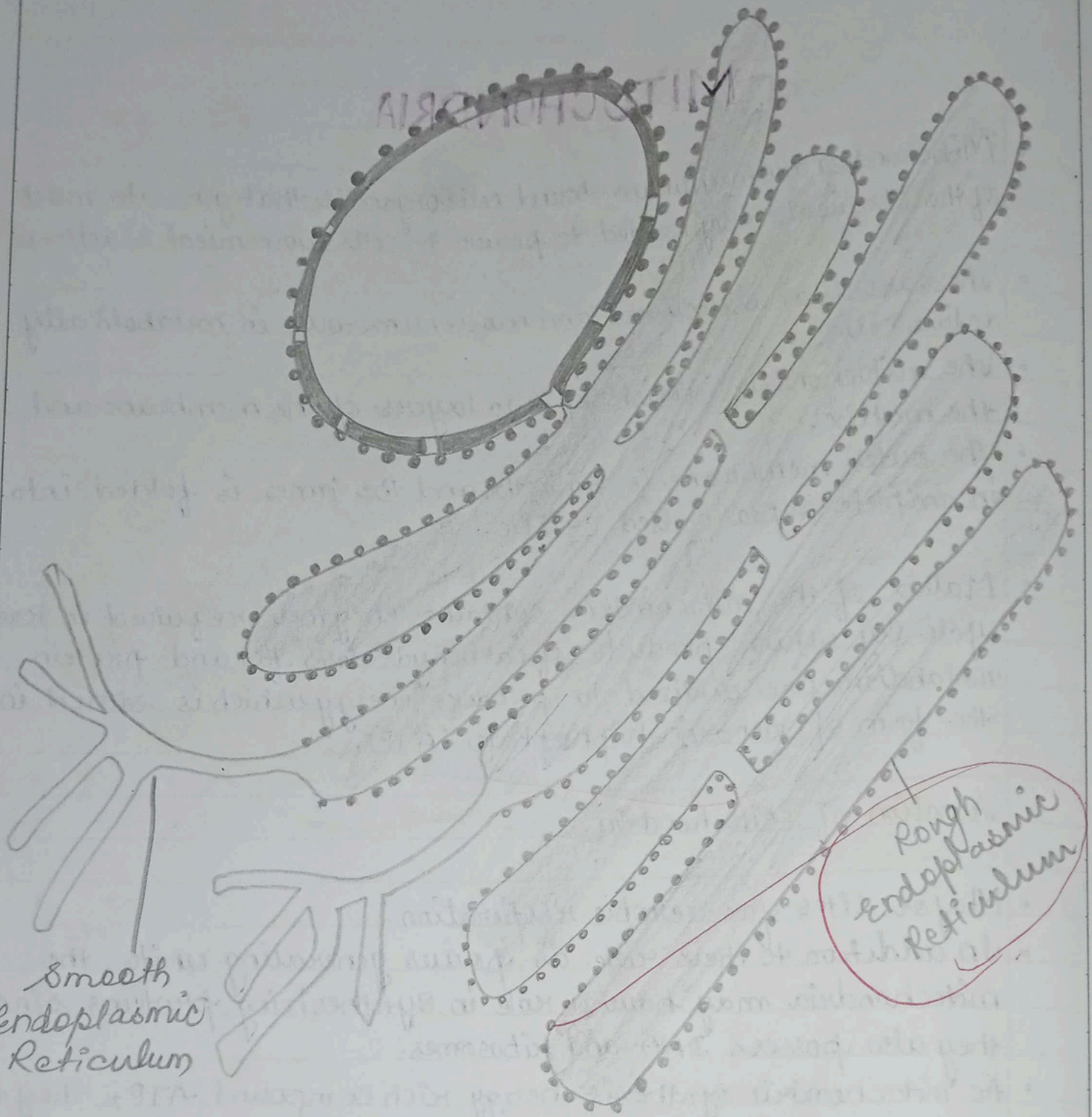


Fig: Endoplasmic Reticulum

ENDOPLASMIC RETICULUM

- Endoplasmic Reticulum is a system of flattened, membrane-bound vesicles and tubules called cisternae.
- Continuous with outer membrane of the nuclear envelop and Golgi apparatus.

Endoplasmic Reticulum

Rough Endoplasmic Reticulum

Characterised by the presence of a number of ribosomes on its surface

Smooth Endoplasmic Reticulum

Devoid of ribosomes on its surface.

Function of Endoplasmic Reticulum.

- Protein folding.
- Assembly of multi-subunit proteins.
- Disulphide bond formation.
- Carbohydrate Metabolism.
- Addition and processing of carbohydrates.
- specific proteolytic cleavage.
- Provide a surface for some biochemical activities of cell.

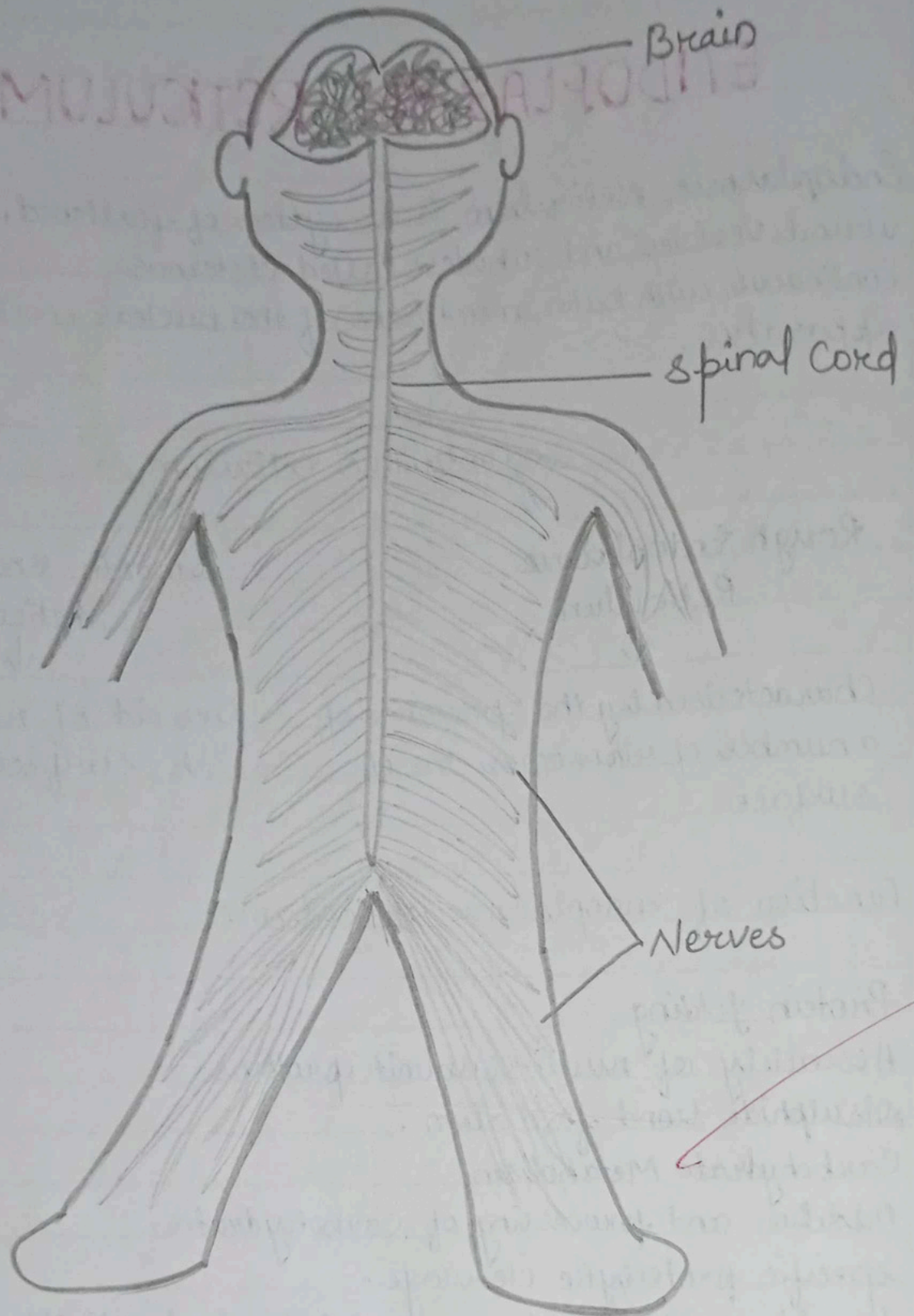
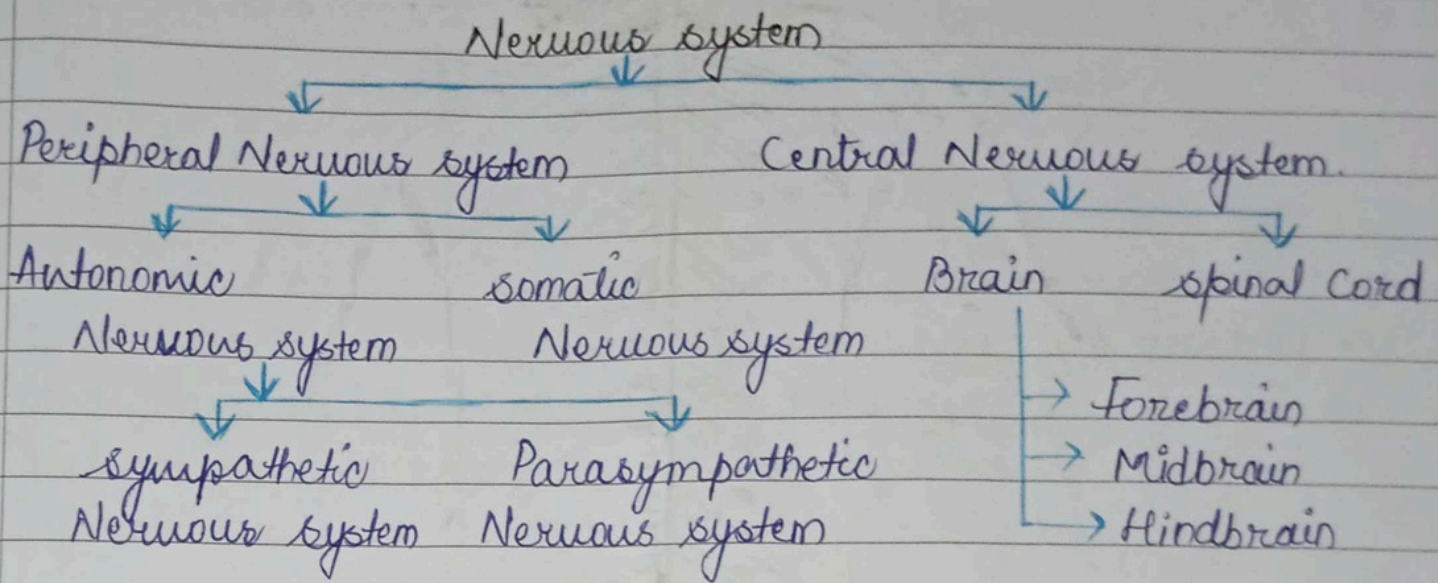


fig: Nervous system

NERVOUS SYSTEM

The nervous system is a complex network of neurons and cells that carry messages to and from the brain and spinal cord to various parts of the body.



Nervous system functions

- Detection of both internal environment and external environment changes of the body.
- Conduction of information and integration of information.
- Response to stimuli.
- Special senses such as hearing, vision, smell and taste.
- Controls movements, thoughts and automatic responses to the world around you.

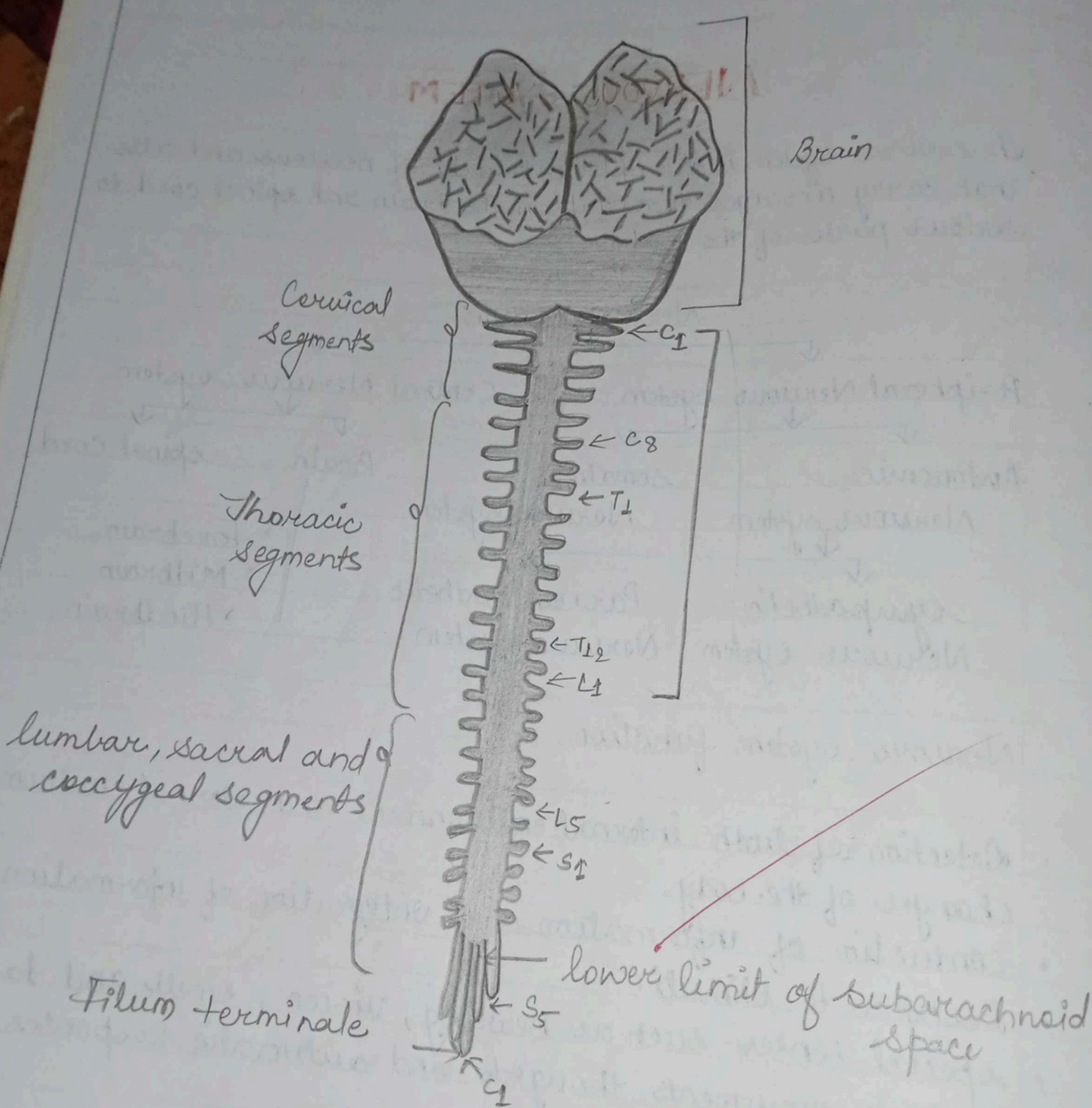


Fig: Central Nervous System.

CENTRAL NERVOUS SYSTEM

- The part of the Nervous system which is vertebrates consists of the brain and spinal cord, to which sensory impulses are transmitted and from which motor impulse pass out, and which coordinates the activity of the entire Nervous system.

Structure

- The central nervous system has three main components: the brain, the spinal cord, and the neurons. Each part of the CNS plays an important role in how the body functions and components of the CNS work together to take in information and control how the body response.

Function

1. Conducts afferent stimuli from sensory receptors to the brain
2. Conducts efferent stimuli from brain to effectors/muscles.
3. site of reflex integration and houses certain central pattern.
4. Take in sensory information, process information and send out motor signals.
- 5.

CENTRAL NERVOUS SYSTEM

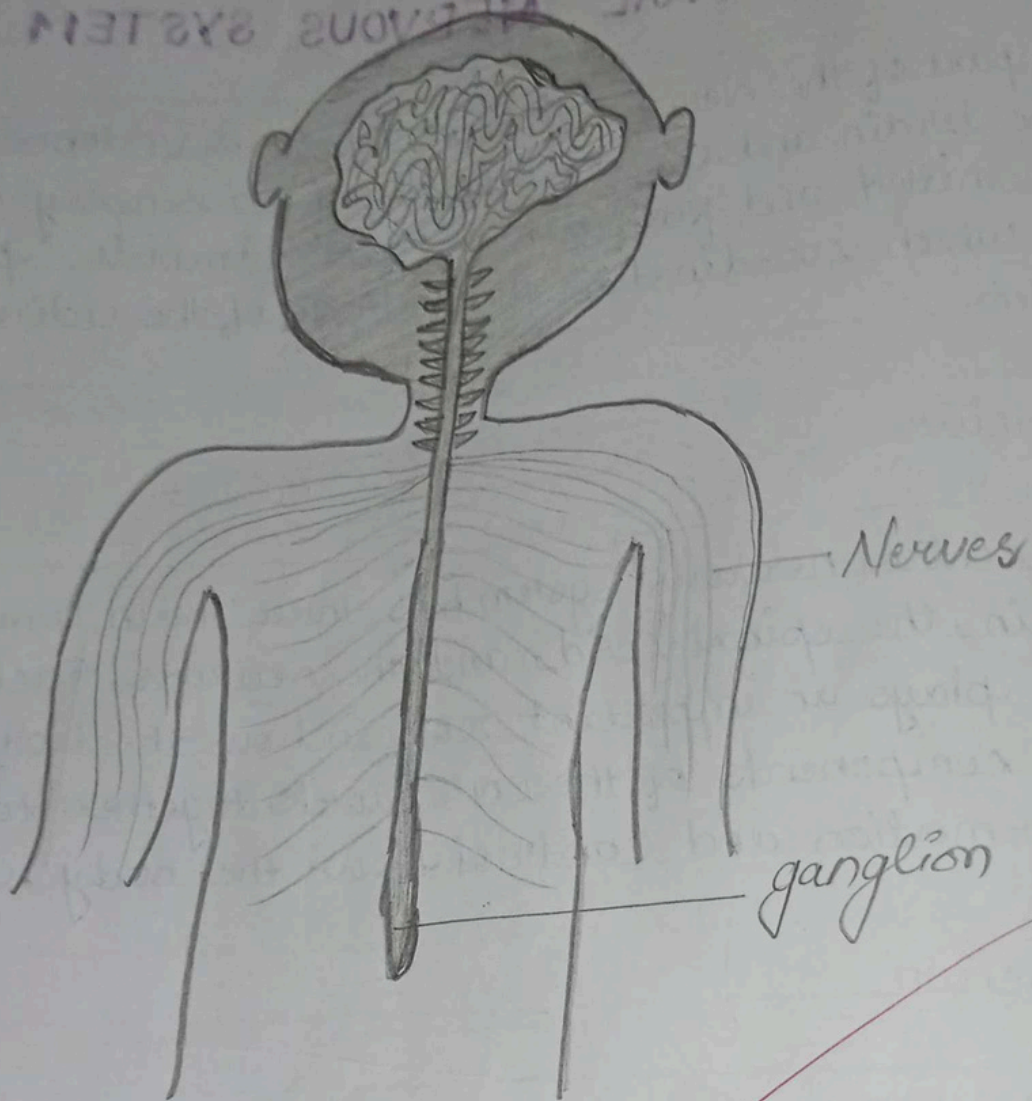
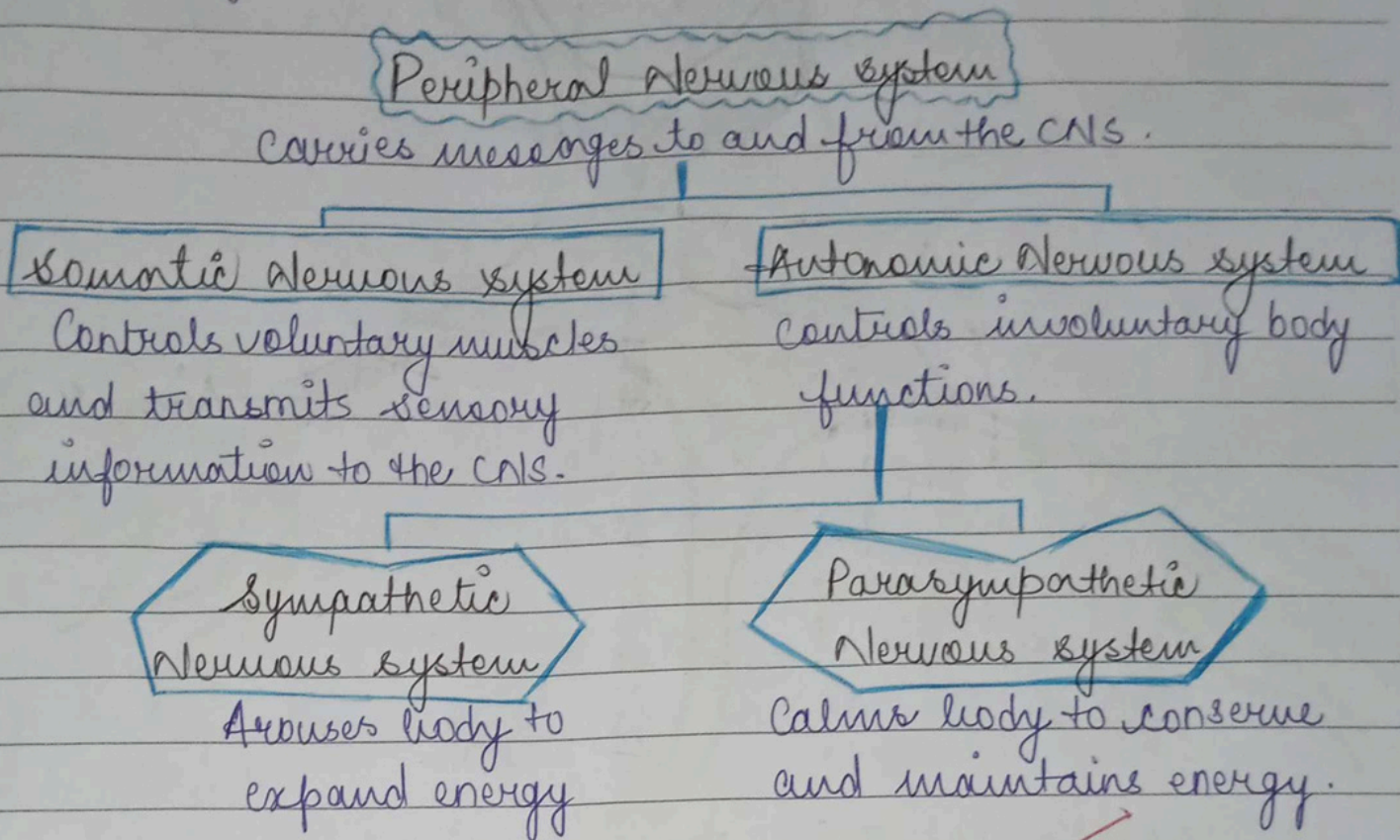


Fig: Peripheral Nervous System.

PERIPHERAL NERVOUS SYSTEM

Peripheral nervous system is that part of our nervous system that lies outside your brain and spinal cord.



Function

- Sending information from different areas of your body back to brain, as well as carrying out commands from your brain to various part of our body.
- It regulates internal homeostasis.
- It can regulate the strength of muscle contractility.

A

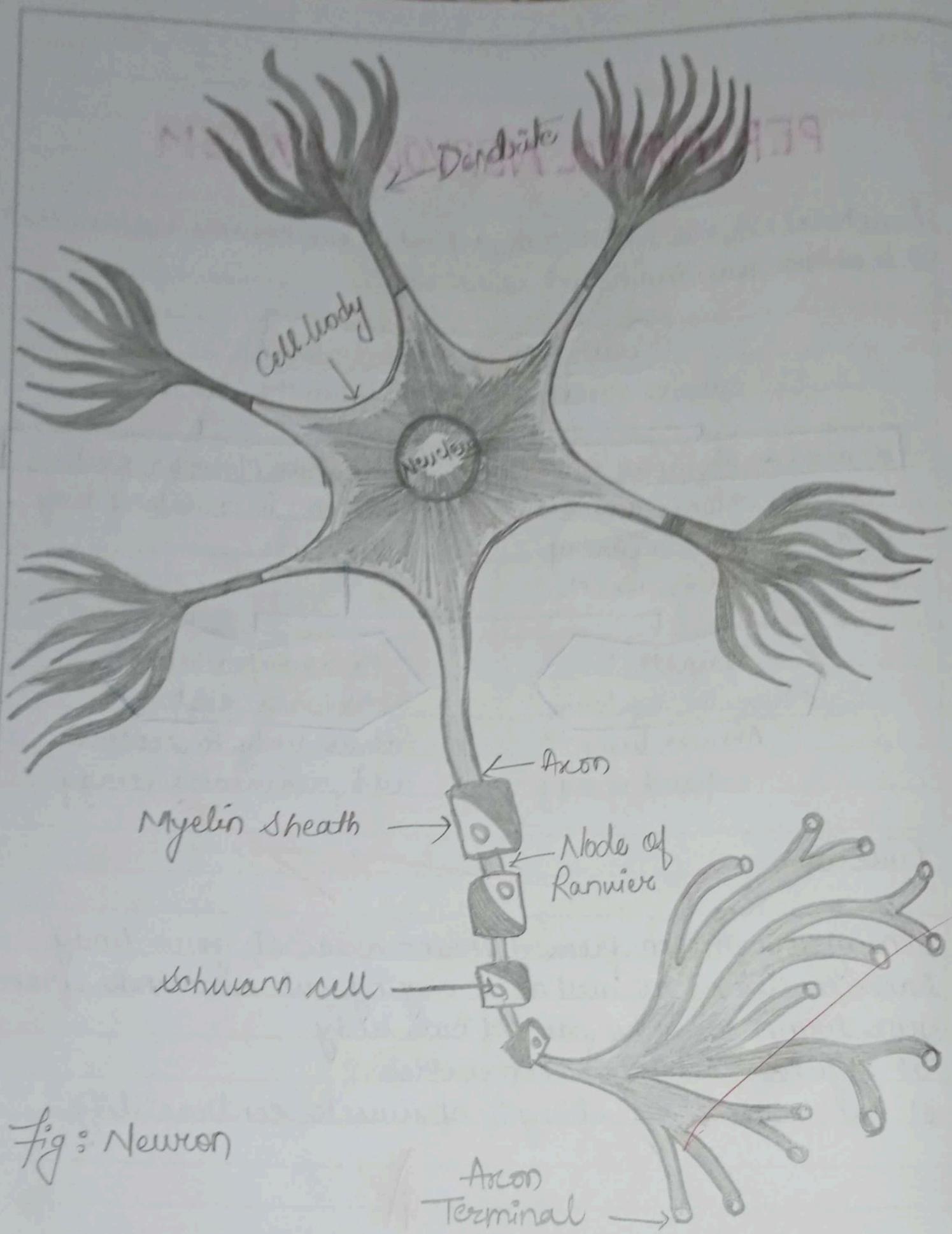
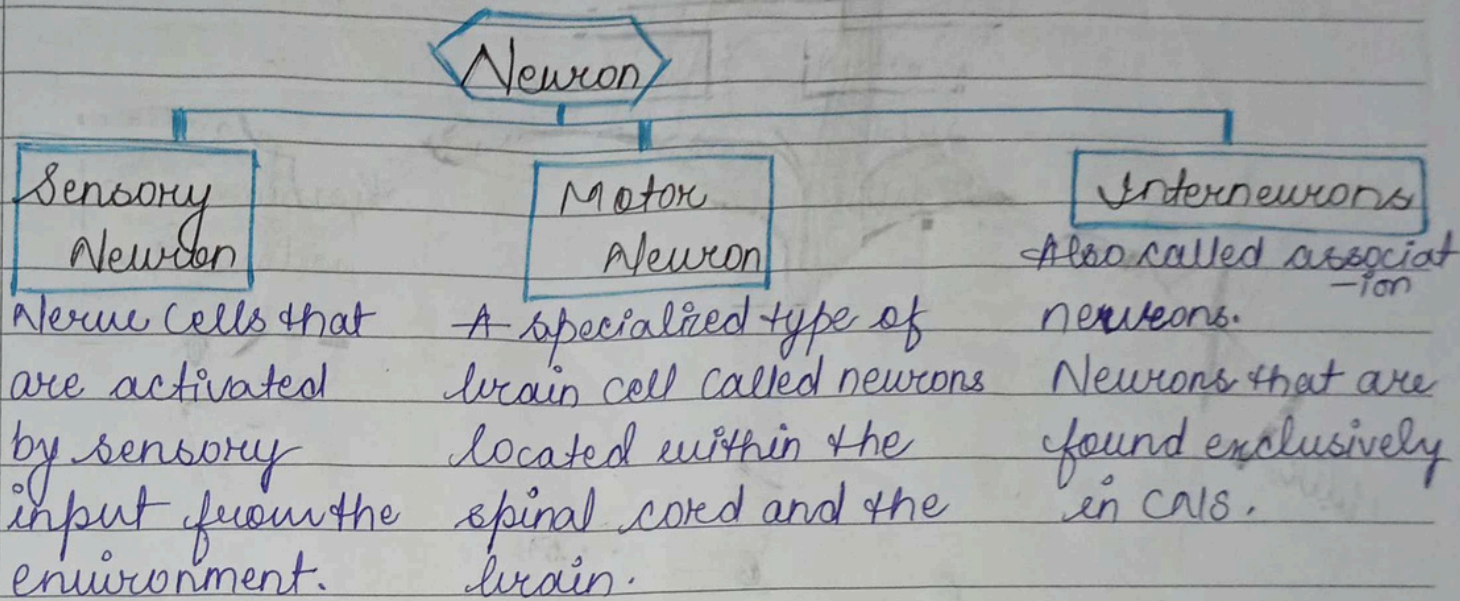


Fig: Neuron

NEURON

The neuron is the basic working unit of the brain, a specialized cell designed to transmit information to other nerve cells, muscle or gland cells.

Neuron is responsible for carrying information.



Function

- Responsible for receiving sensory input from the external world, for sending motor commands to our muscles, and for transforming and relaying the electrical signals at every step in between.
- Send and receive signals from our brain.

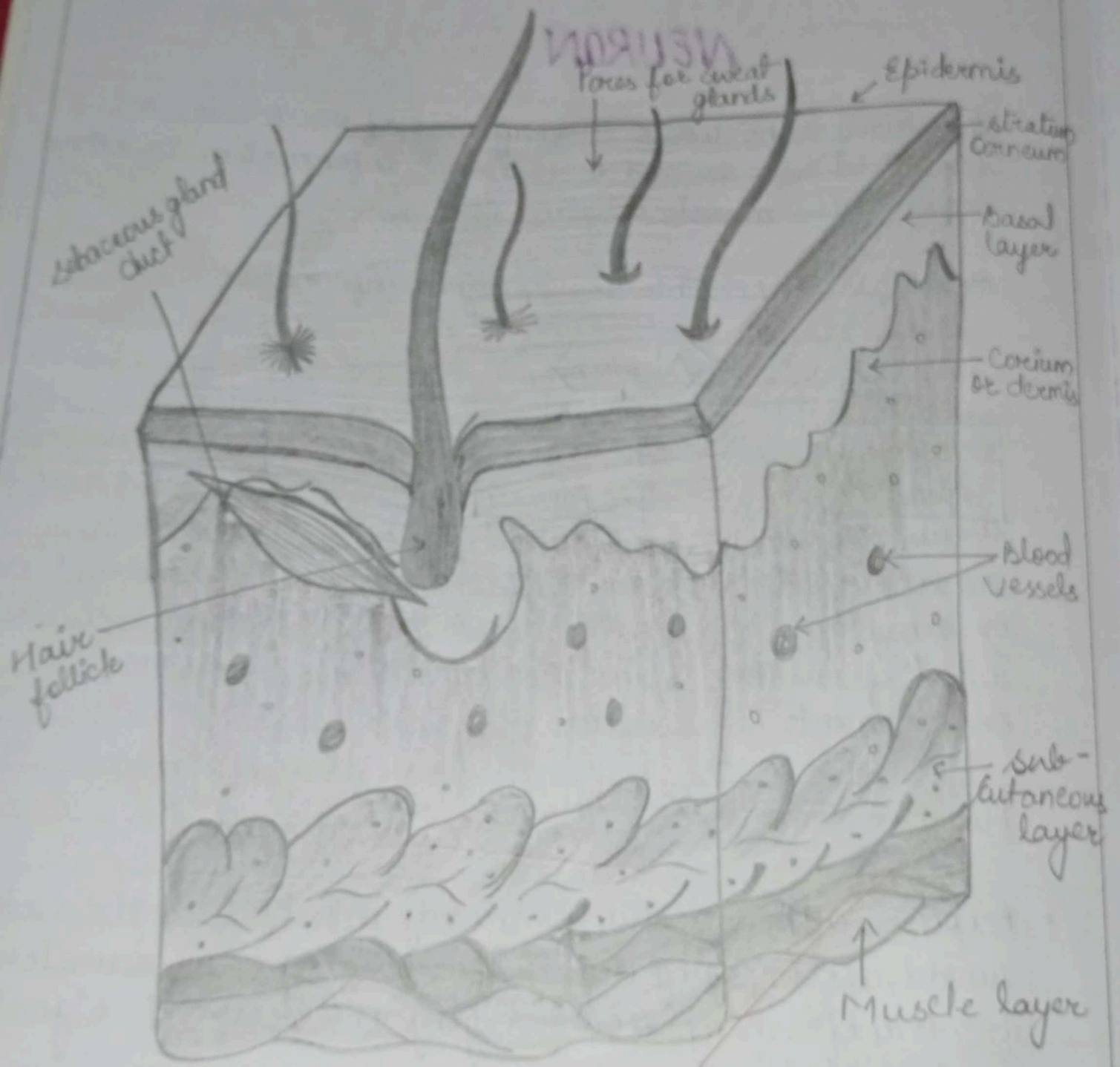


Fig: Skin

SKIN

- The skin is the largest organ of the body.
- Made of water, protein, fats and minerals.

skin

Epidermis

The top layer

Dermis

The middle layer

Hypodermis

The fatty layer.

- One inch of raw skin has approximately 19 million skin cells and 60,000 melanocytes. It also contains 1,000 nerve endings and 20 blood vessels.

Function

- Provides a protective barrier against mechanical thermal and physical injury and hazardous substances.
- Excretion
- Sensation
- Physical appearance
- Thermoregulation
- Ultraviolet protection
- wound repair / regeneration
- Permeability barrier.
- Blood reservoir.

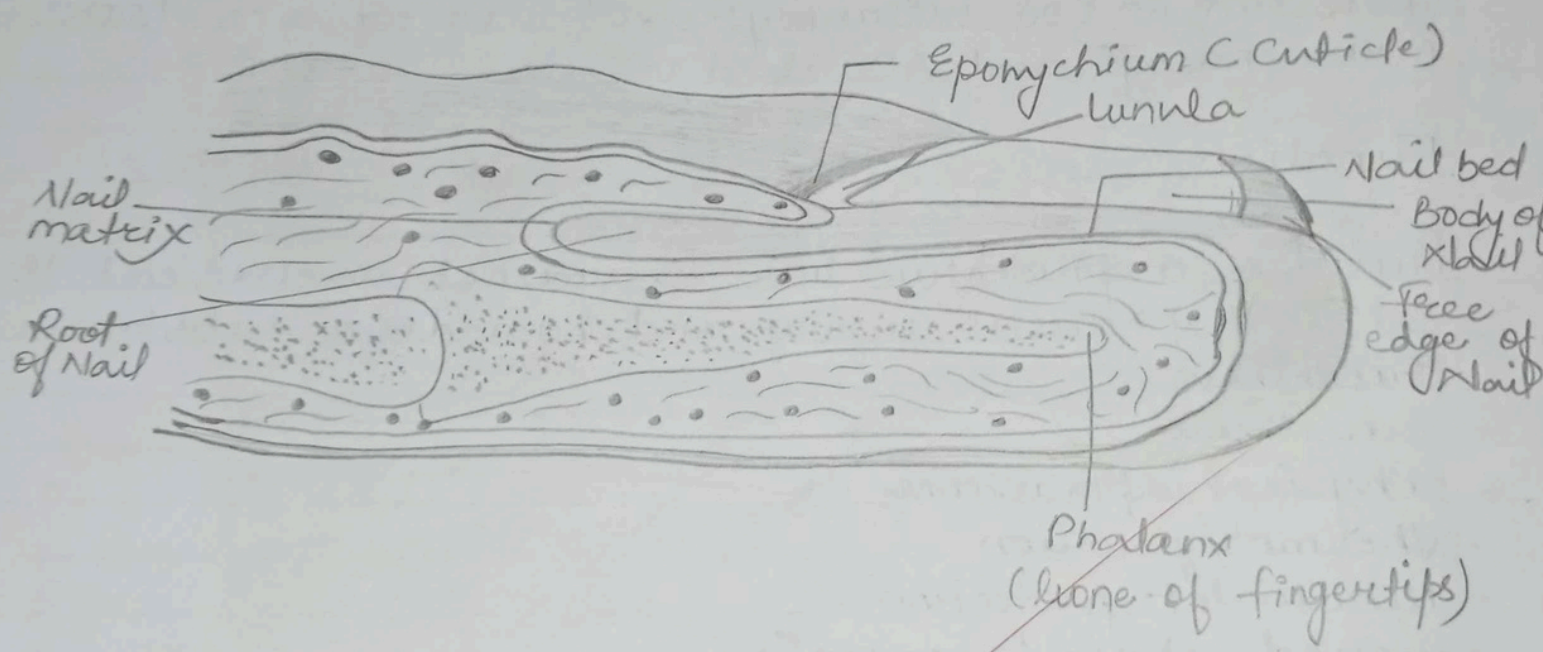
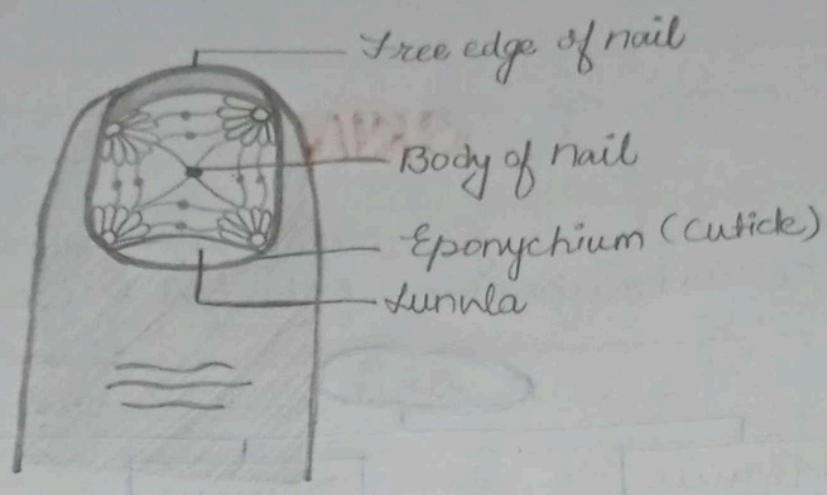


Fig: Nail

NAIL

A nail is a claw-like plate at the tip of the fingers and toes in most primates.

The nail is a platelike, keratinous, translucent structure that consists of highly specialized epithelial cells.

The part that we call the nail is technically known as the "nail plate". The nail plate is mostly made of a hard substance called keratin.

Structure

The nail structure is divided into six parts: Root, nail bed, nail plate, eponychium, paronychia and hyponychium.

Function

1. Nail protect the sensitive tips of fingers and toes.
2. Support the tips of our fingers and toes.
3. Protect them from injury, and help us to pick up small objects.
4. Help in pincer grip.
5. Serve an aesthetic and cosmetic purpose.

HAIR

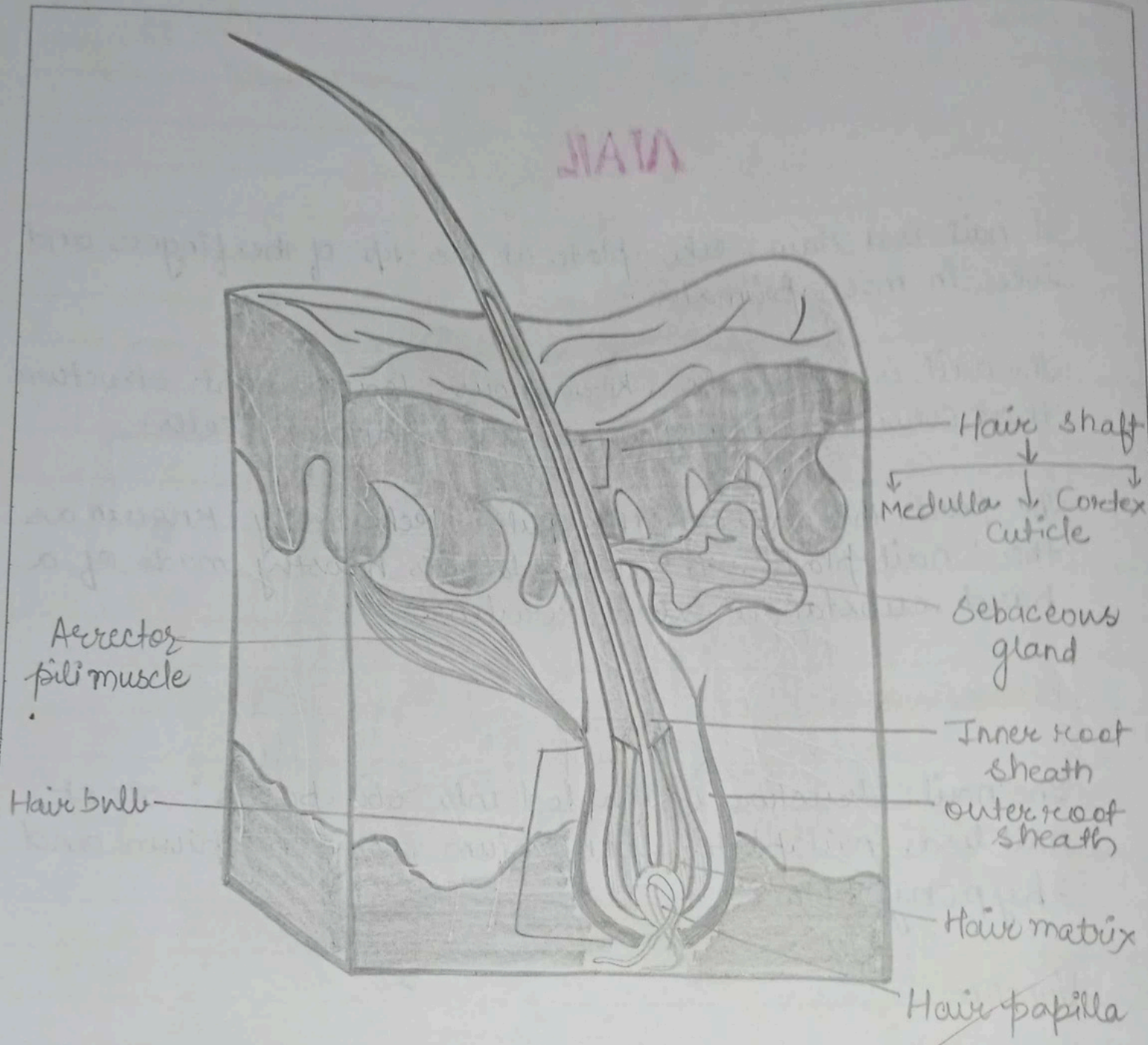
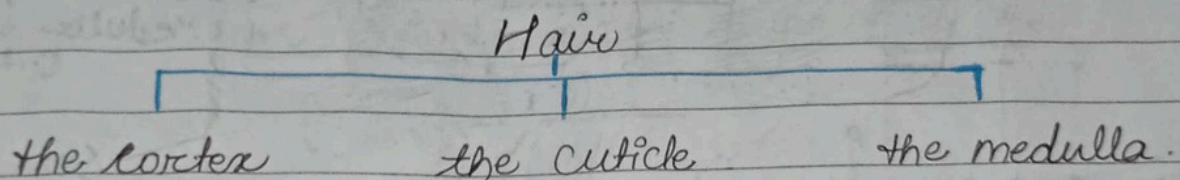


Fig : - Hair

HAIR

• Any of the cylindrical, keratinized, often pigmented filaments characteristically growing from the epidermis of mammal.

• Hair is made of a tough protein called keratin.



• Each hair has a hair shaft and a hair root. The shaft is the visible part of the hair that sticks out of the skin. The hair root is in the skin and extends down to the deeper layers of the skin. It is surrounded by the hair follicle, which is also connected to the sebaceous gland.

Function

- Regulates body temperature.
- Decreases friction.
- Protect against sunlight.
- Acts as a sense organ.
- Touch receptors.

PIAH

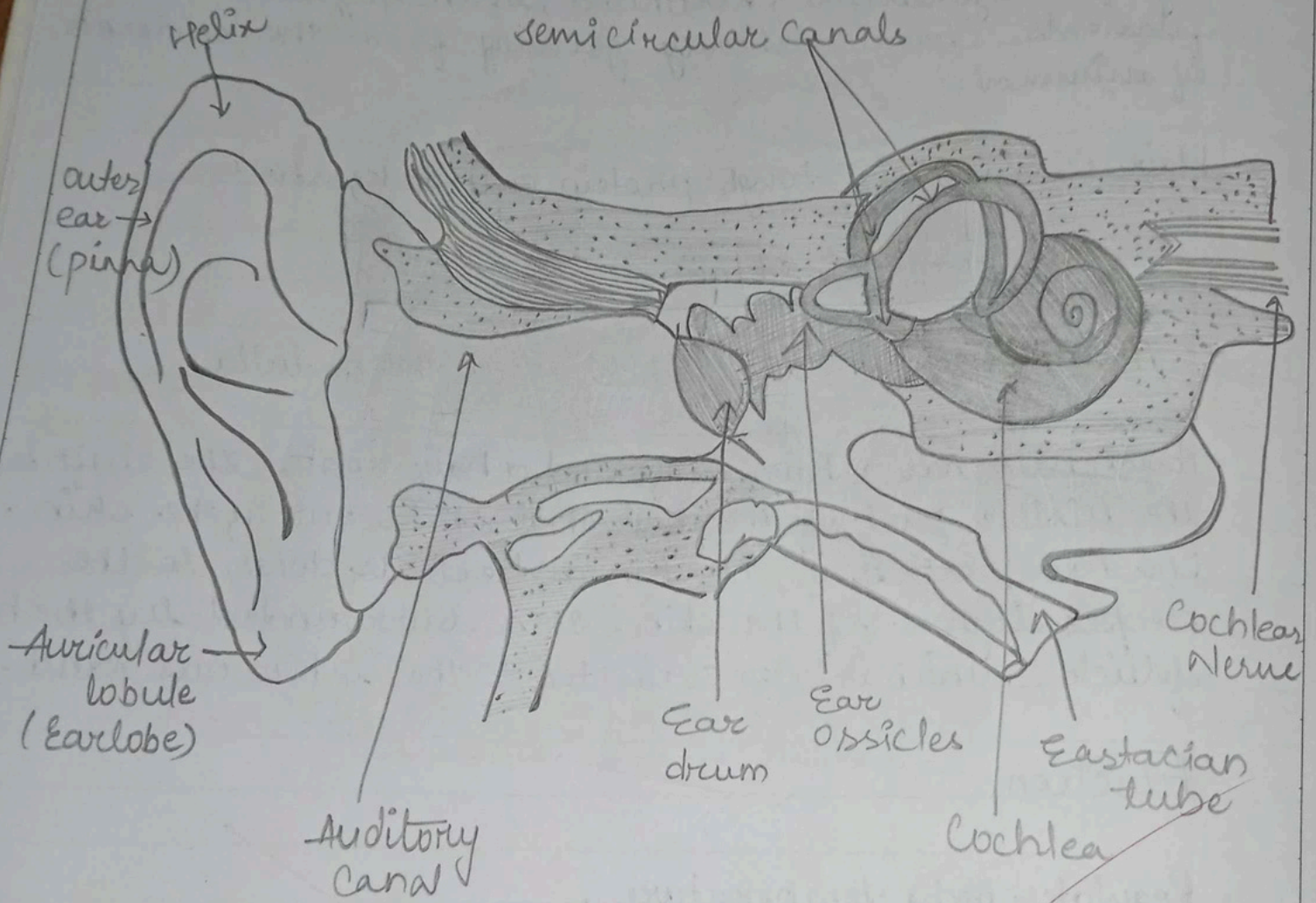
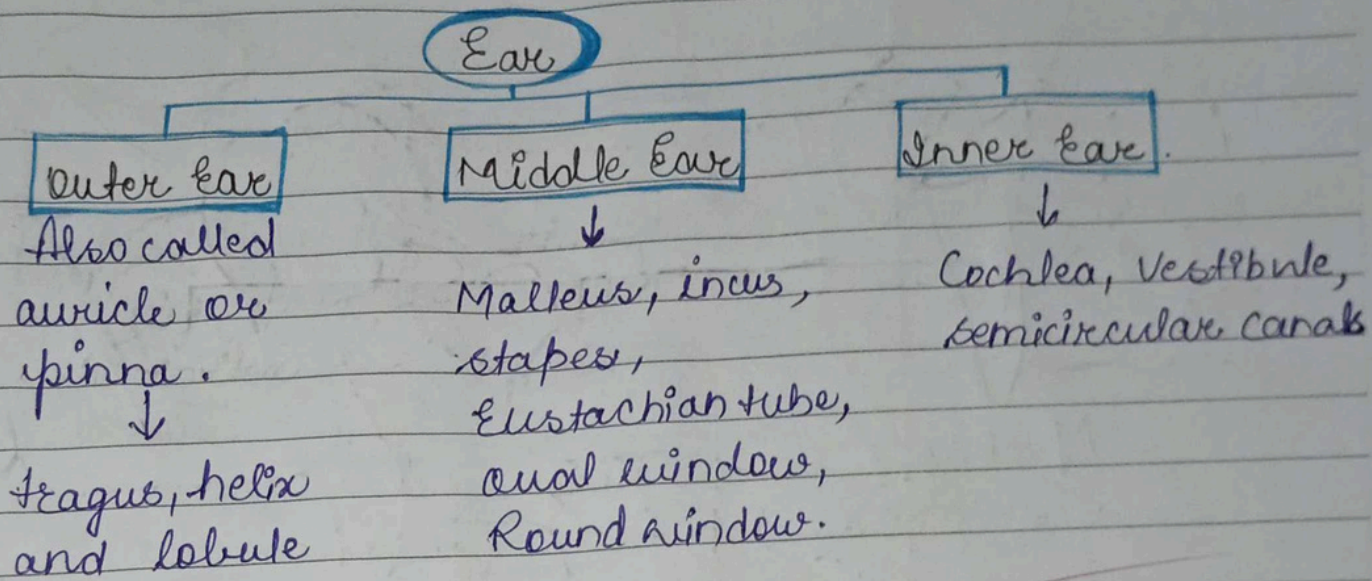


Fig: Ear

EAR

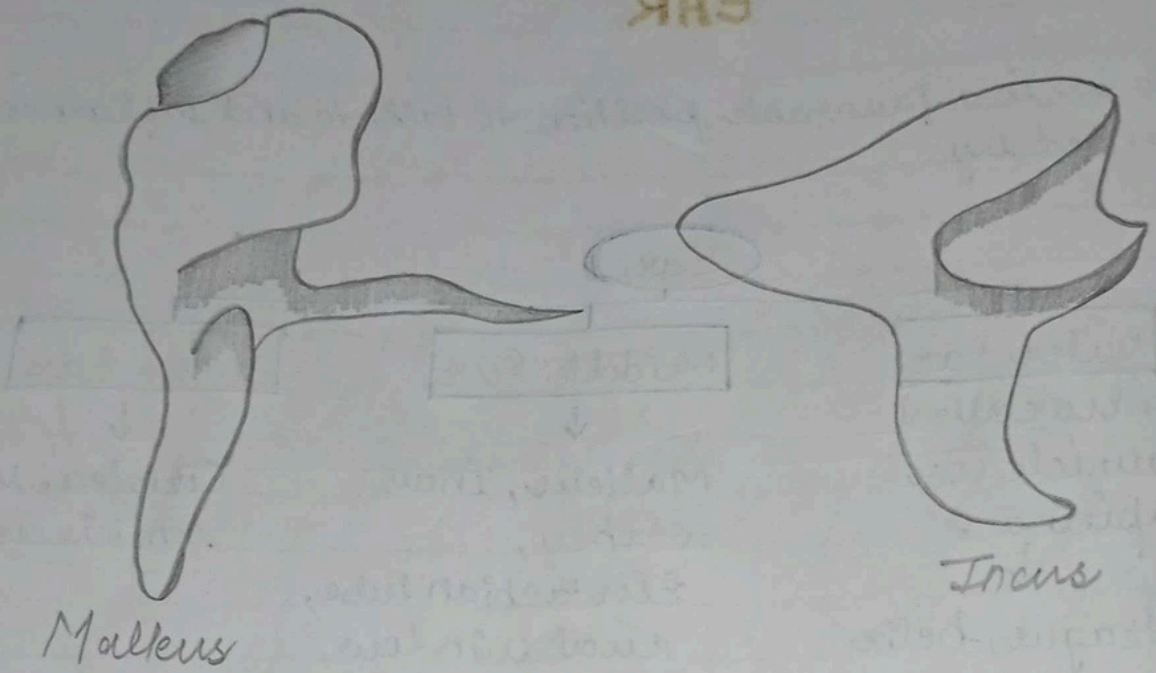
- To be in a favourable position to talk, to and influence; be heeded by.



Function

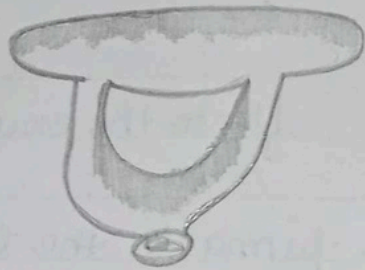
- The pinna collects reflects the sound wave into the external auditory canal.
- Extend from the pinna to the tympanic membrane.
- It secrete ear (cerumen) wax from the ceruminous gland (cerumen), oil from the sebaceous gland.
- starts from concha to ear drum (tympanic membrane) length is 2.5 cm.
- Hearing.
- Balance.

EAR



Malleus

Incus

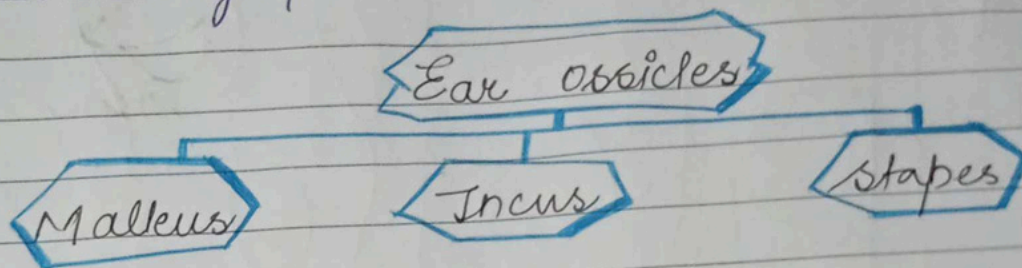


Stapes

Fig : - Ear Ossicles.

EAR OSSICLES

- The middle ear consist of the tympanic membrane and the bony ossicles called the malleus, incus and stapes.
- These three ossicles connect the tympanic membrane to the inner ear allowing for the transmission of sound waves.
- The malleus is the first ossicle and attaches to and moves with the tympanic membrane.



Function

- The malleus connects to the tympanic membrane transferring auditory oscillations to the incus and then the stapes.
- The incus transmits vibrations from the malleus to the stapes.
- The stapes connects to the oval window allowing for mechanical energy to be transferred to the fluid-filled inner ear.
- Convey sound vibrations to the bone's flat base.

EAR OSSICLES

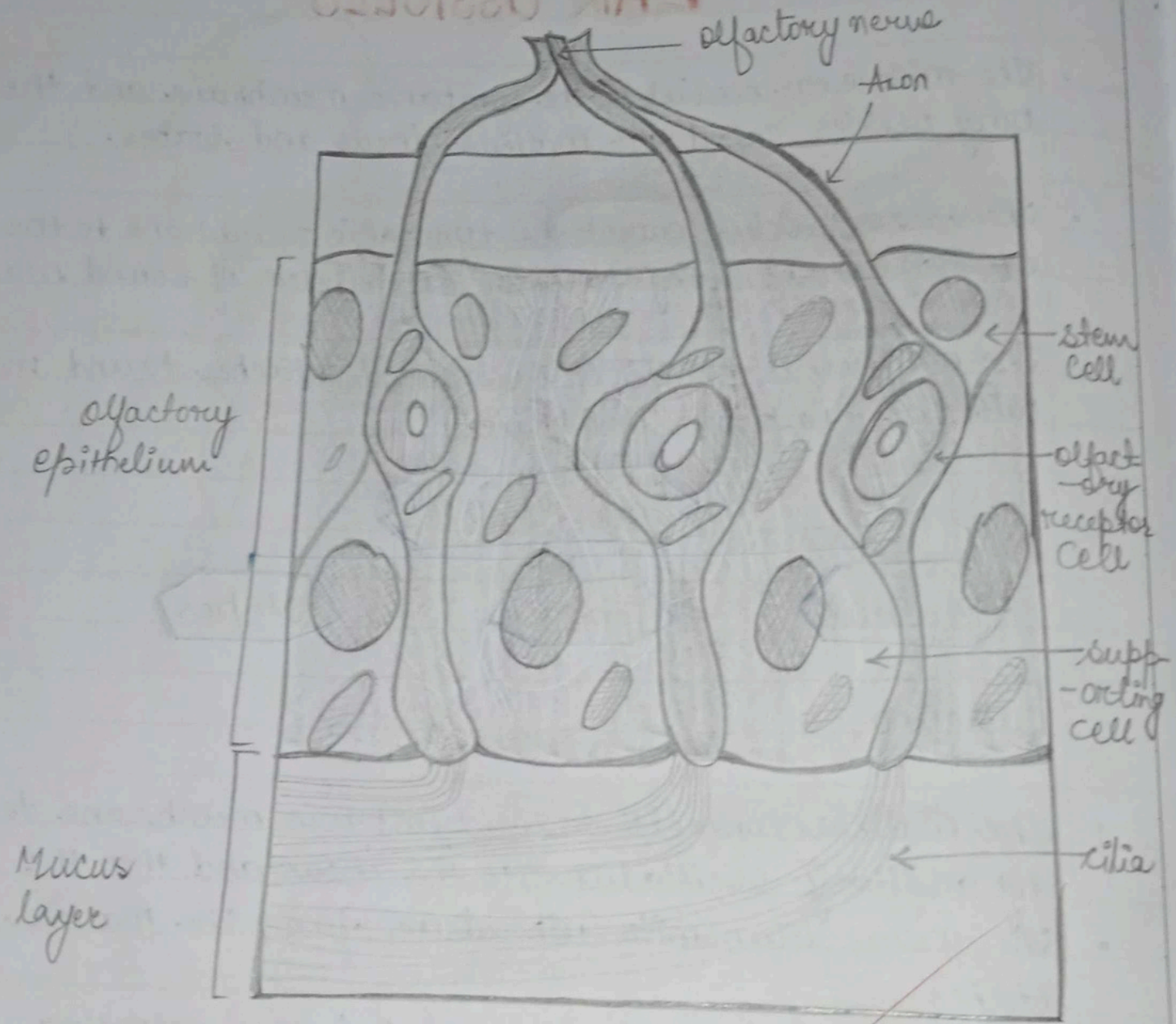


Fig: Olfactory Mucosa.

OLFACTORY MUCOSA

- The olfactory mucosa is the part of the nasal mucosa that carries the specialized sensory organ for the modality of smell.
- The olfactory mucosa is composed of three primary components: epithelium, basement membrane, and lamina propria.

Olfactory Mucosa.

Pseudostratified, no goblet cells, irregular cilia, cellular lamina propria, numerous, large nerve bundles, thin basement membrane.

Function

- The olfactory mucosa is the part of the nasal mucosa that carries the specialized sensory organ for the modality of smell.
- To recognize the scents inhaled by the nose.

OLFACTORY MUCOSA

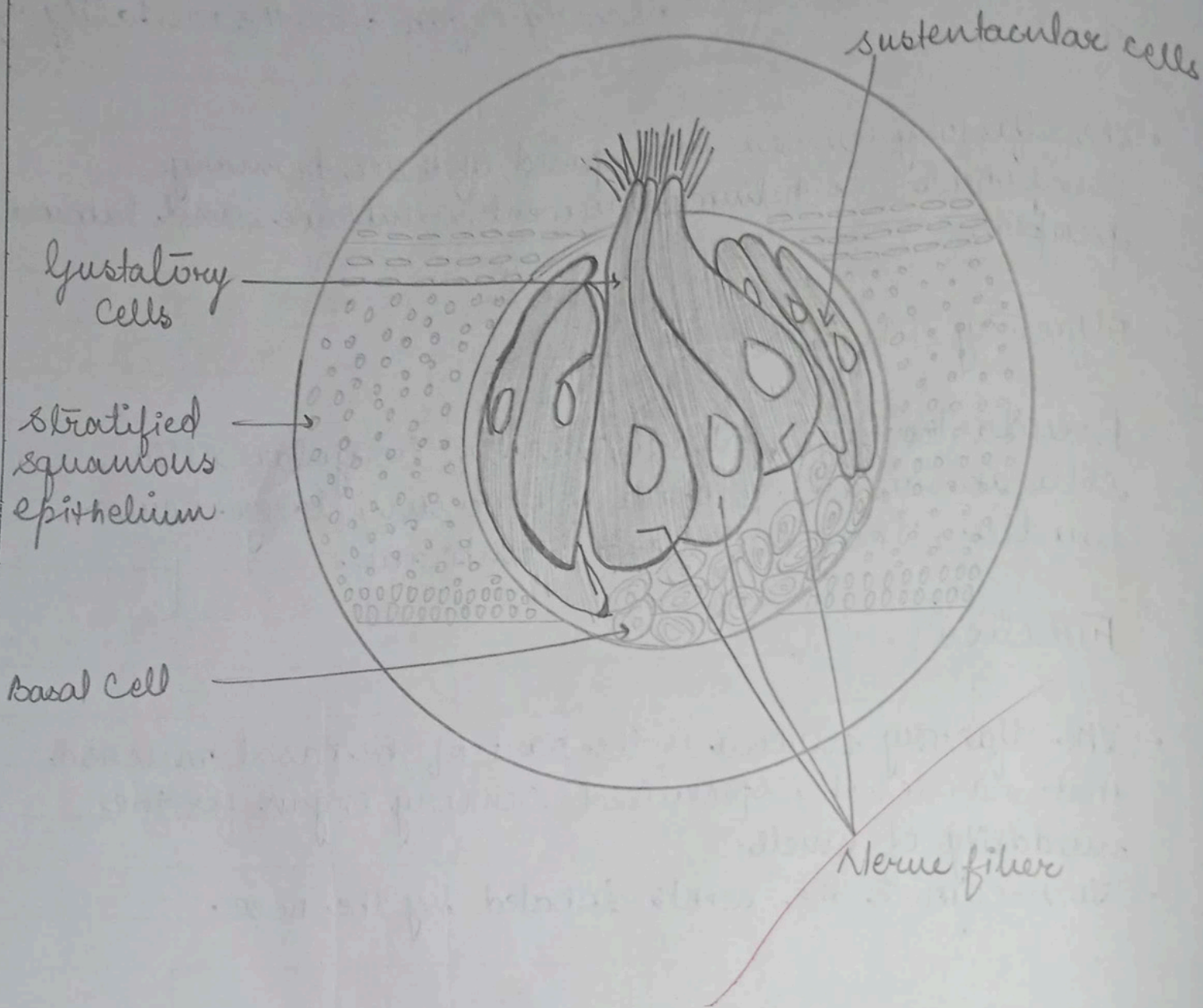


Fig: Tongue

TONGUE

- The soft part inside your mouth that you can move.
- We use our tongue for speaking, tasting etc.
- The tongue is mainly made up of muscles.
- It is covered with a mucous membrane.
- Small lumps (-papillae) cover the surface of back part of the tongue.
- Between the papillae are the taste buds, which allow you to taste.
- The tongue moves food to help you chew and swallow.

Function of tongue.

Sound formation.

Speech formation.

Chewing (aiding in mastication)

Tasting (gustatory sensation)

- "Death and life are in the power of the tongue, and those who love it will eat its fruits".
- The tongue's main job is helping us eat.
- The tongue can also differentiate many taste and flavors, which helps us tell whether the food is good for us.

TONGUE

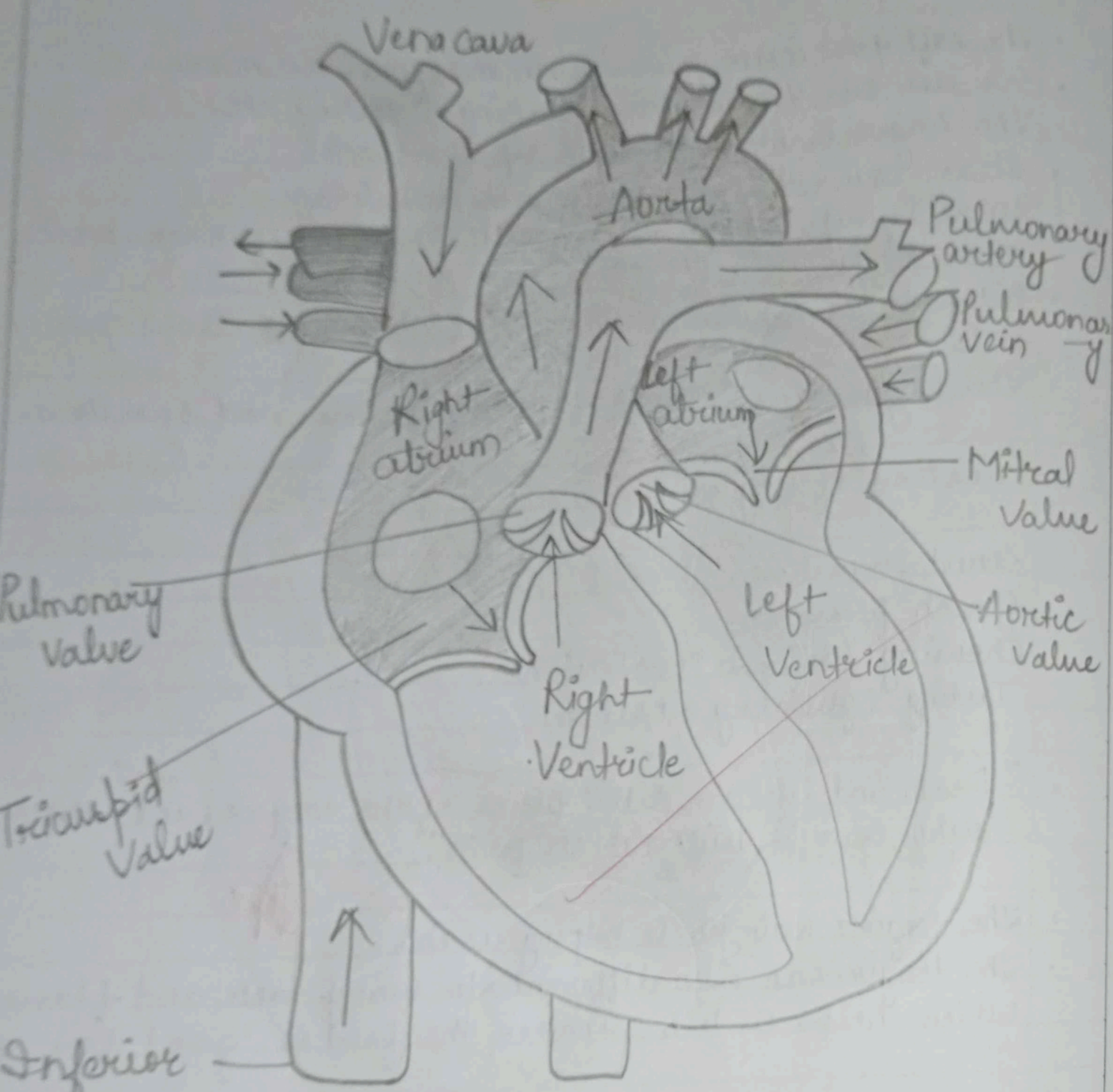


Fig: Heart

HEART

- The heart is an organ about the size of your fist that pumps blood through your body.
- It is made up of multiple layers of tissue.
- Heart is at the center of your circulatory system.

Location

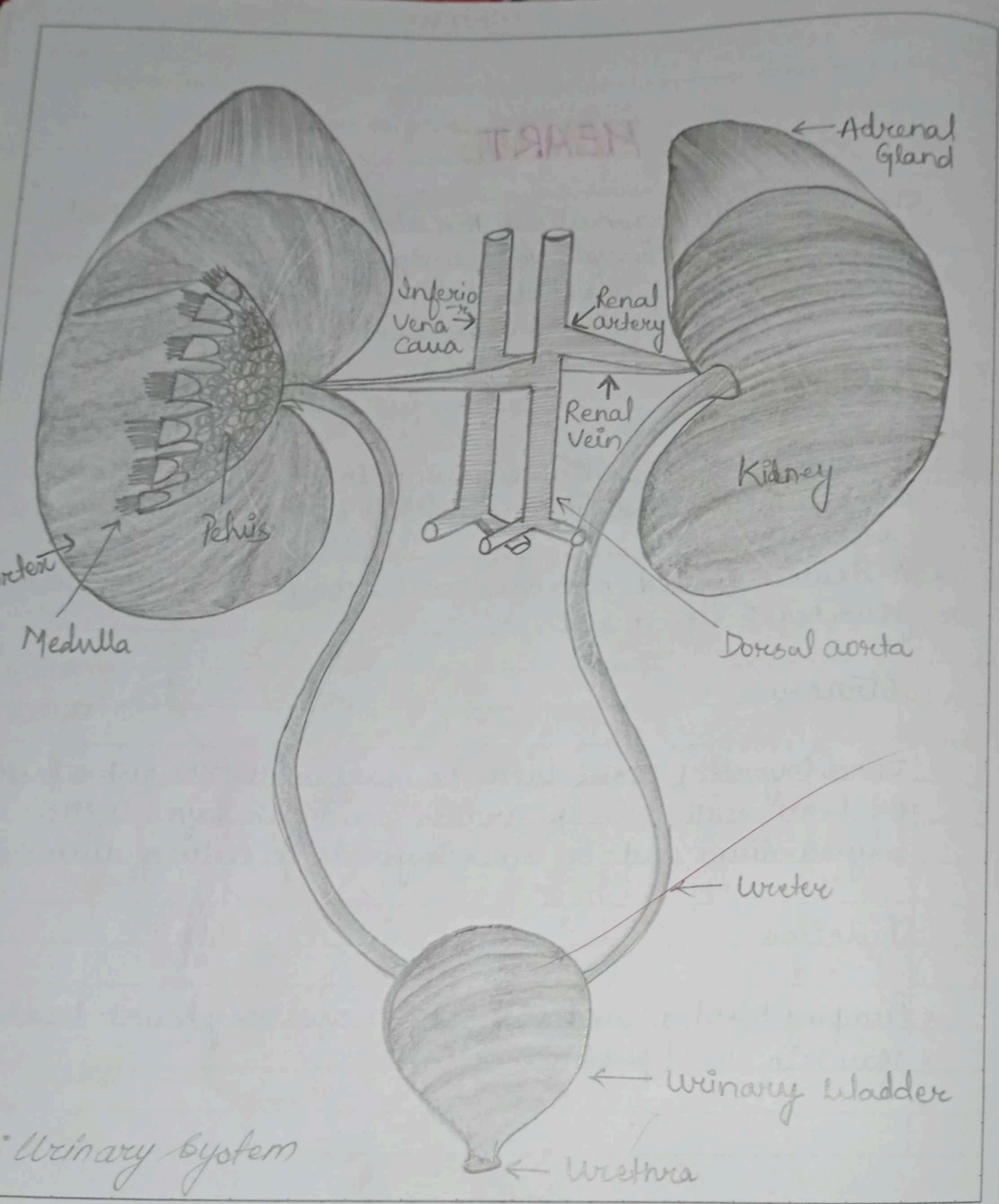
- Heart is located between your lungs in the middle of our chest, behind and slightly to the left of your breastbone (sternum).
- A double-layered membrane called the pericardium surrounds your heart like a sac.

Structure

- Three layers of tissue form the heart wall. The outer layer of the heart wall is the ~~epicardium~~, the middle layer is the myocardium and the inner layer is the endocardium.

Function

- Pumping blood around our body as our body heart beats.
- Maintain blood pressure.
-



URINARY SYSTEM

- Urinary system is also known as renal system.
- Urinary system remove waste from your blood in the form of urine.
- The system consist of the kidneys, ureters, bladder and urethra.
- It filters wastes and extra fluid from the bloodstream and removes them from the body.

Structure

- Two kidneys, two ureters, the urinary bladder, and the urethra.

Function.

- To filter blood and create urine as a waste by product.
- Maintain acid-base balance.
- Eliminate urine from bladder.
- secrete waste products in the form of urine.
- Removing nitrogenous wastes, certain salts and excess water from blood.

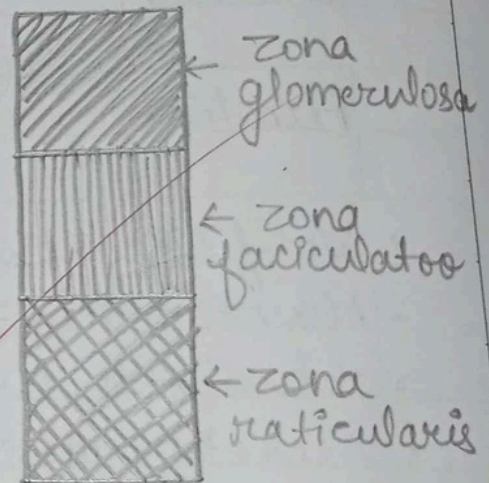
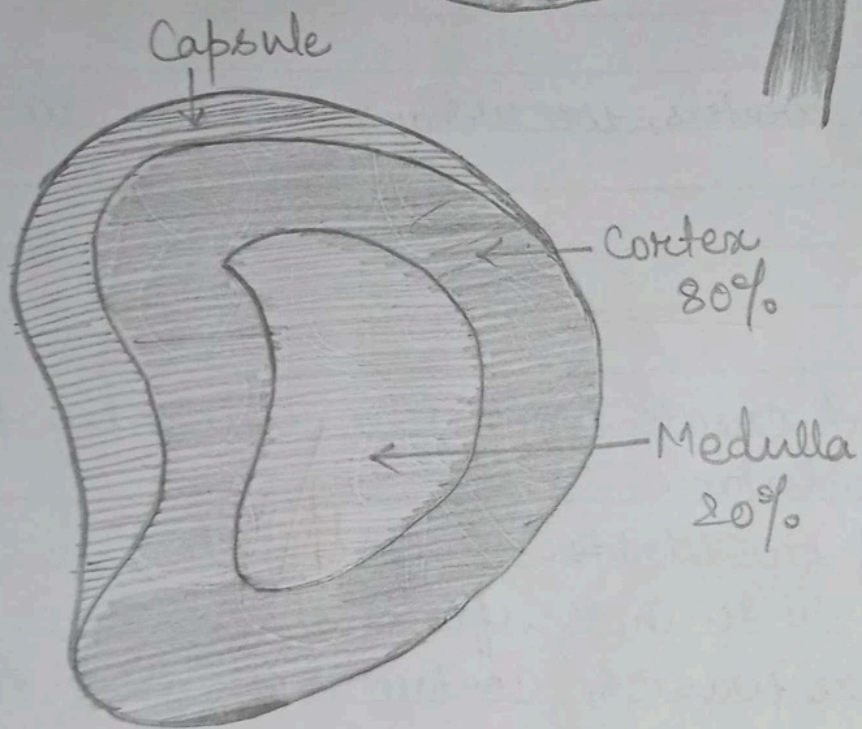
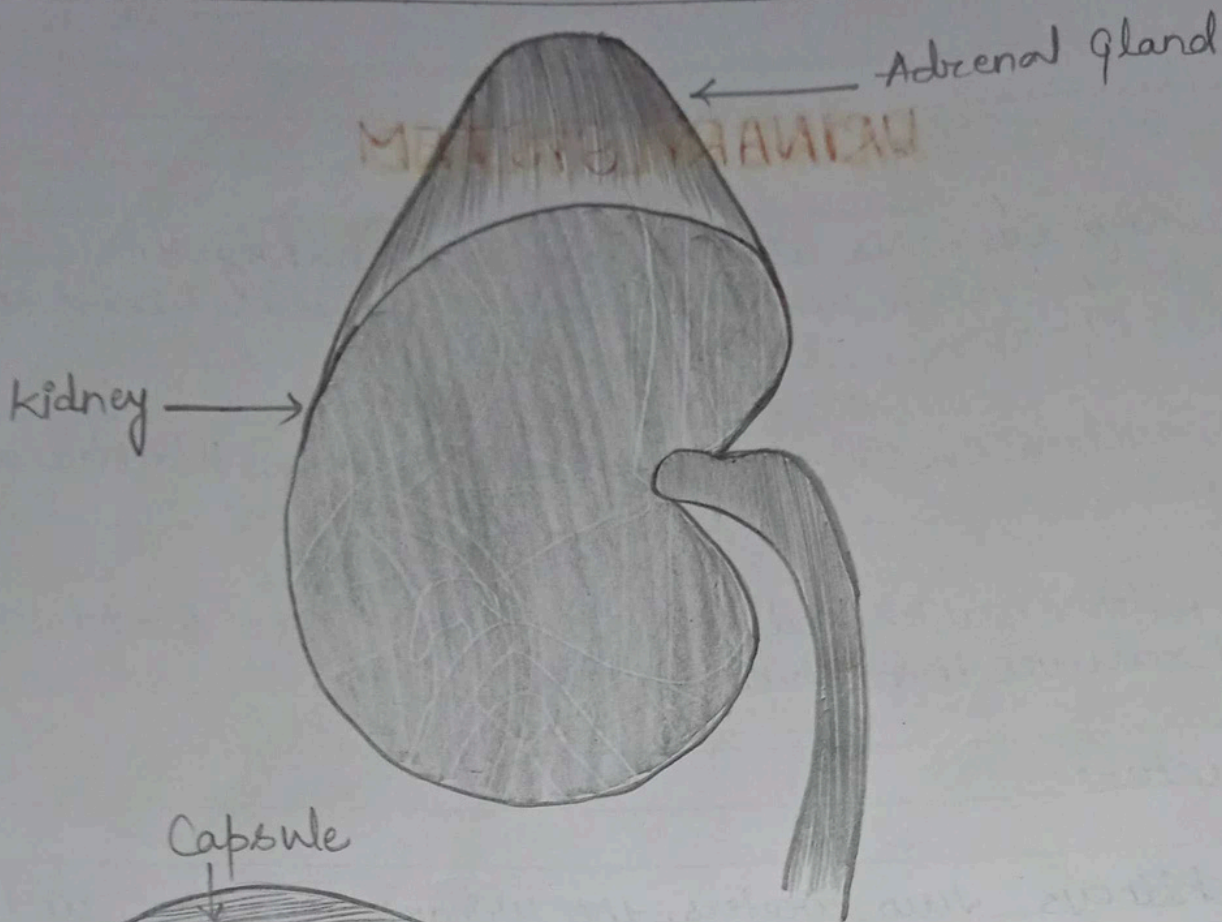


Fig: Adrenal gland

ADRENAL GLAND

- Adrenal gland, also known as suprarenal glands, are small, triangular-shaped located on top of both kidney.
- Human cannot live without adrenal gland, so if both adrenal glands are removed, then the patient needs to take medications and supplements to provide the necessary hormone.
- The adrenal cortex is the outer region and also the largest part of an adrenal gland. It is divided into three separate zones:
 - Zona glomerulosa.
 - Zona fasciculata.
 - Zona reticularis.

Structure

- Irregularly shaped cells grouped around blood vessels.

Function

- Adrenal gland produce hormones that help regulate your metabolism, immune system, blood pressure response to stress and other essential functions.

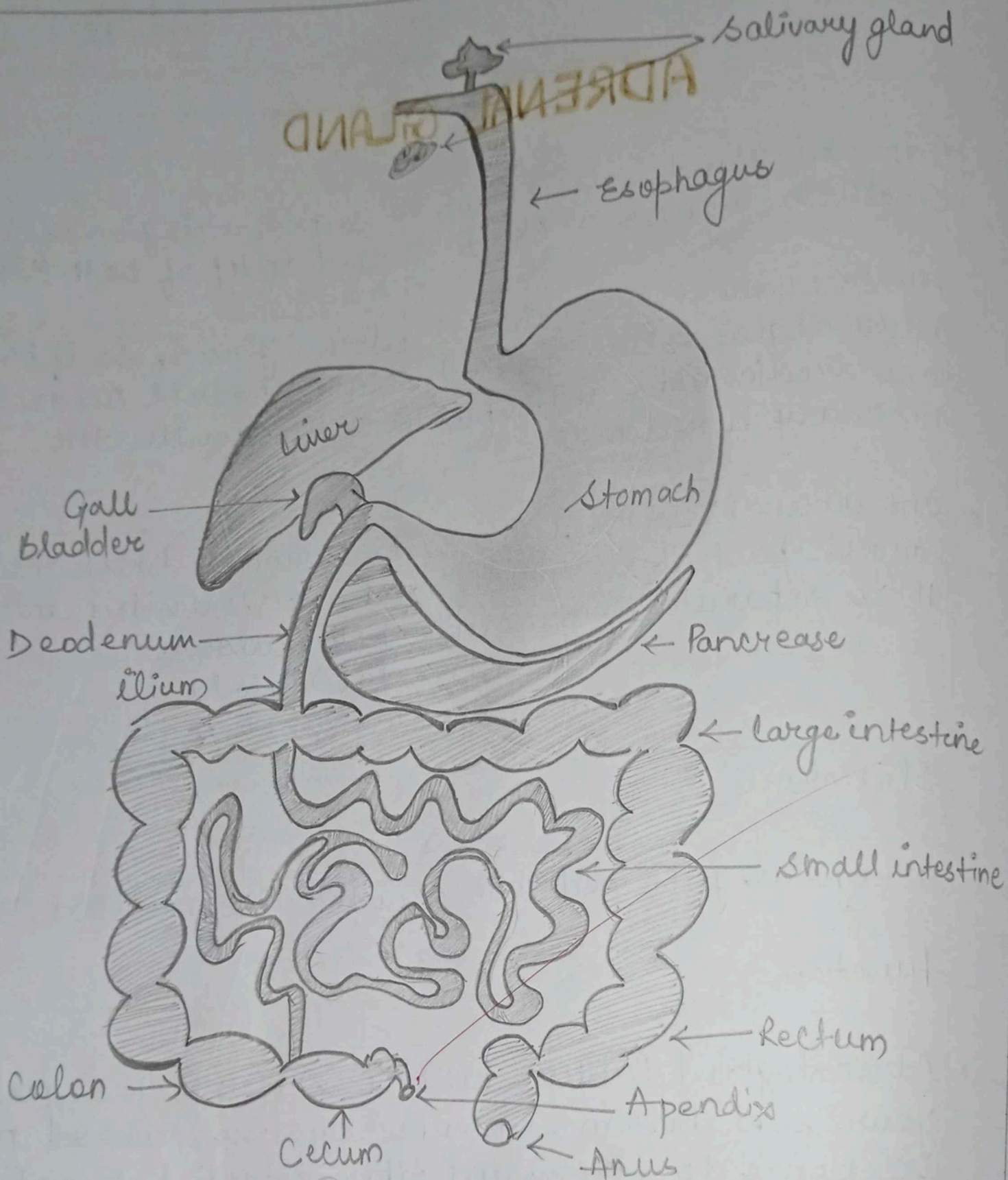


Fig: Digestive System

DIGESTIVE SYSTEM

- The organs that take in food and liquids and break them down into substances that the body can use for energy, growth, and tissue repair.
- The digestive system includes the digestive tract and its accessory organs, which process food into molecules that can be absorbed and utilized by the cells of the body.

Structure

- The GI tract is a series of hollow organs joined in a long, twisting tube from the mouth to the anus.

Function

- Breaks nutrients into parts small enough for your body to absorb and use for energy, growth, and cell repair.
- Breaks down food into nutrients such as carbohydrates, fats and proteins.
- Provide mechanical processing.
- Absorption of food
- secretion of water, acids, enzymes, buffers, salt
- excretion of waste product.
- Ingestion.

DIGESTIVE SYSTEM

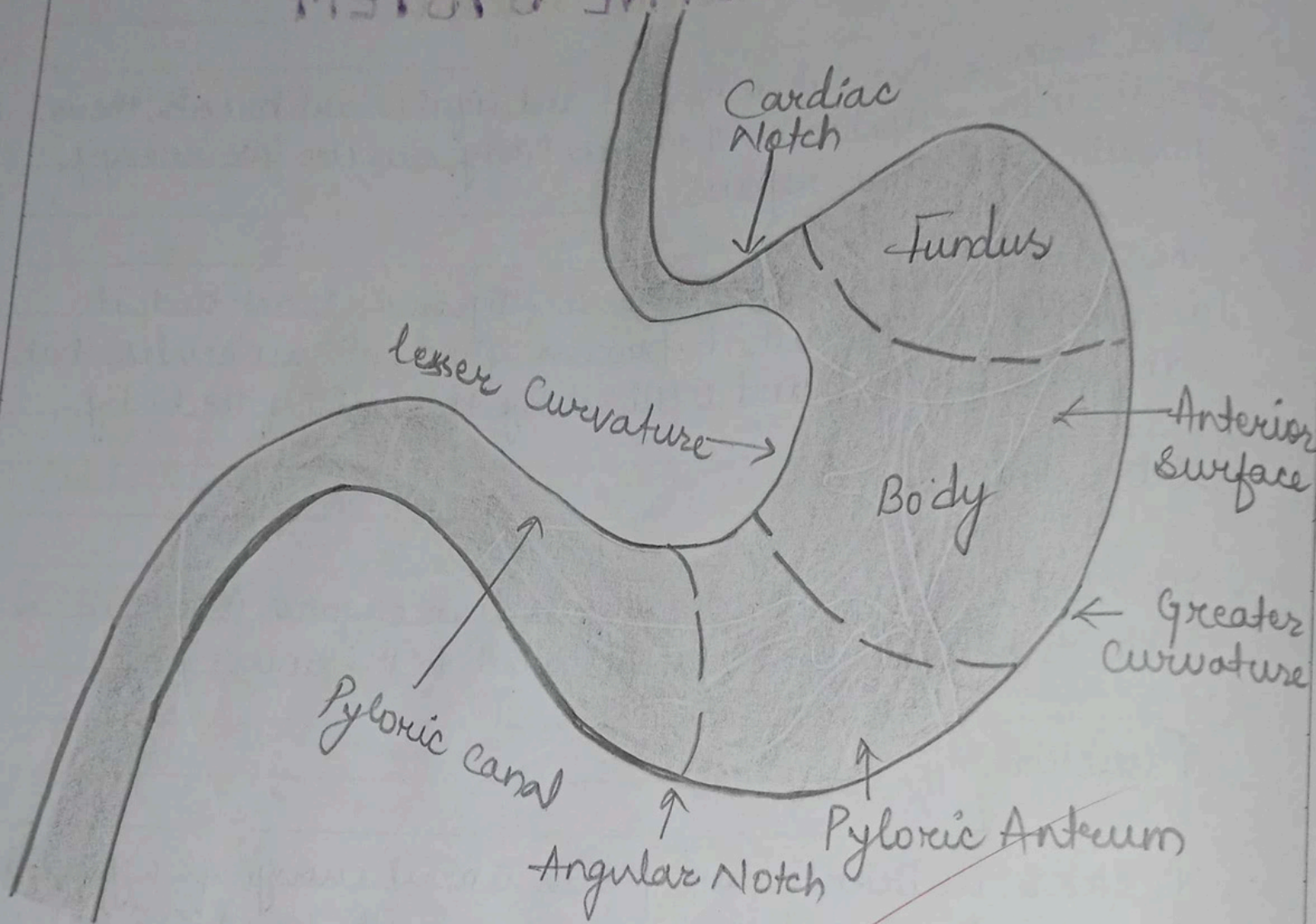


Fig: stomach.

STOMACH

- The stomach is a J-shaped organ that digests food.
- It produces enzymes and acid to digest food.
- This mix of enzymes and digestive juices breaks down food so it can pass to your small intestine.
- Stomach is the part of the gastrointestinal tract (GIT).
- An-organ that is part of the digestive system.
- The stomach helps digest food by mixing it with digestive juices and churning it into a thin liquid.

Structure

- Stomach is divided into three parts fundus, body, antrum.

Function

- J-shaped organ that digest food.
- Storage of food.
- mixing of the food with gastric secretions to form chyme.
- emptying of the contents into the small intestine at a rate that is proper for digestion and absorption.

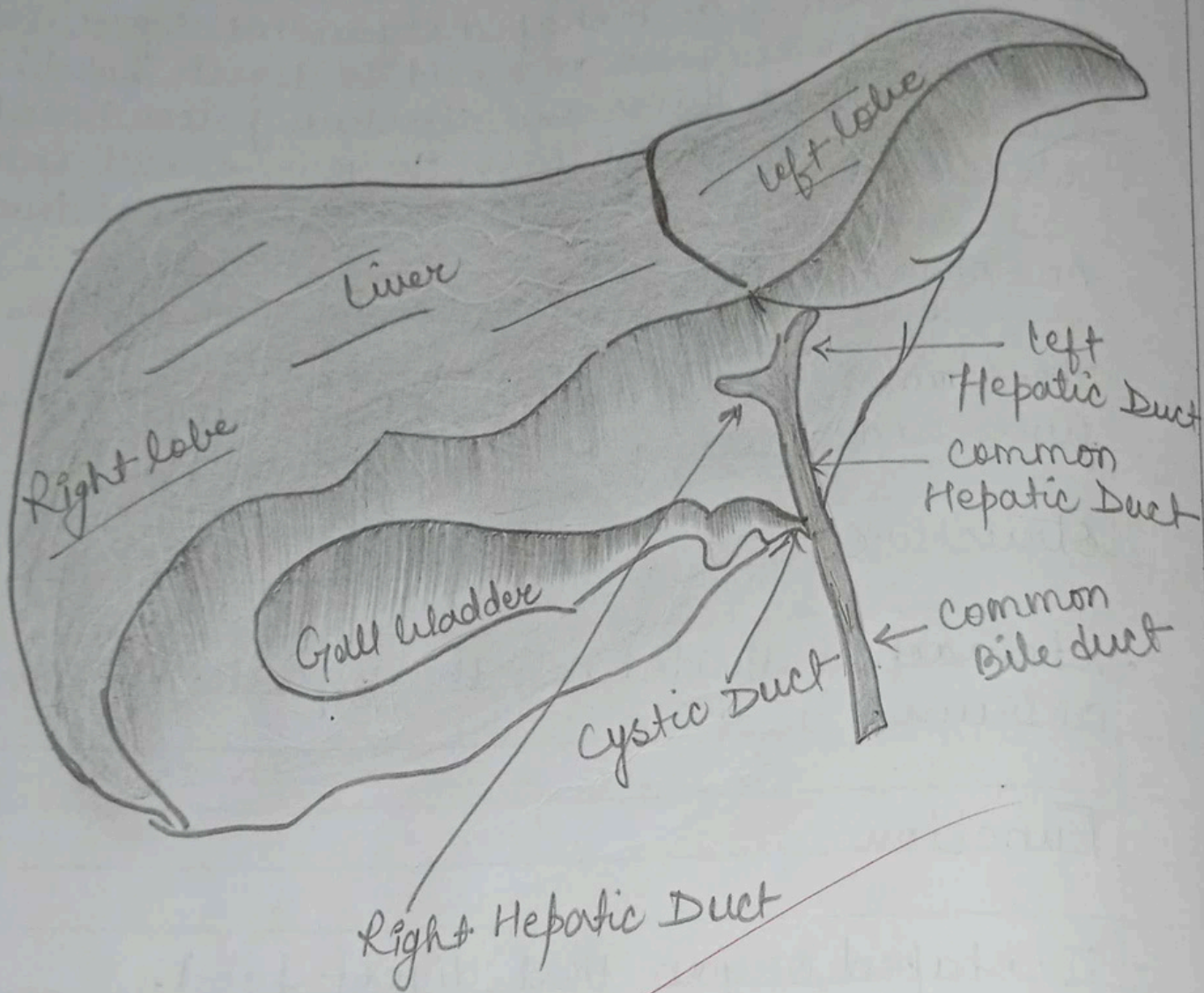


Fig: Liver.

LIVER

- The liver is located in the upper right-hand portion of the abdominal cavity, beneath the diaphragm, and on top of the stomach, right kidney, and intestine.
- A largest organ located in the upper abdomen.

Structure

- 2 main lobes, Both are made up of 8 segments that consist of 1,000 lobules (small lobes).
- The liver consist of four lobes:
 - The larger right lobe.
 - The larger left lobe.
 - The smaller caudate lobe.
 - The smaller quadrate lobe.

Function

- Enzyme activation
- Storage of glycogen, vitamins, and minerals.
- Bile production and excretion
- Metabolism of fats, proteins and carbohydrates.
- Excretion of bilirubin, cholesterol, hormones and drugs.

LIVER

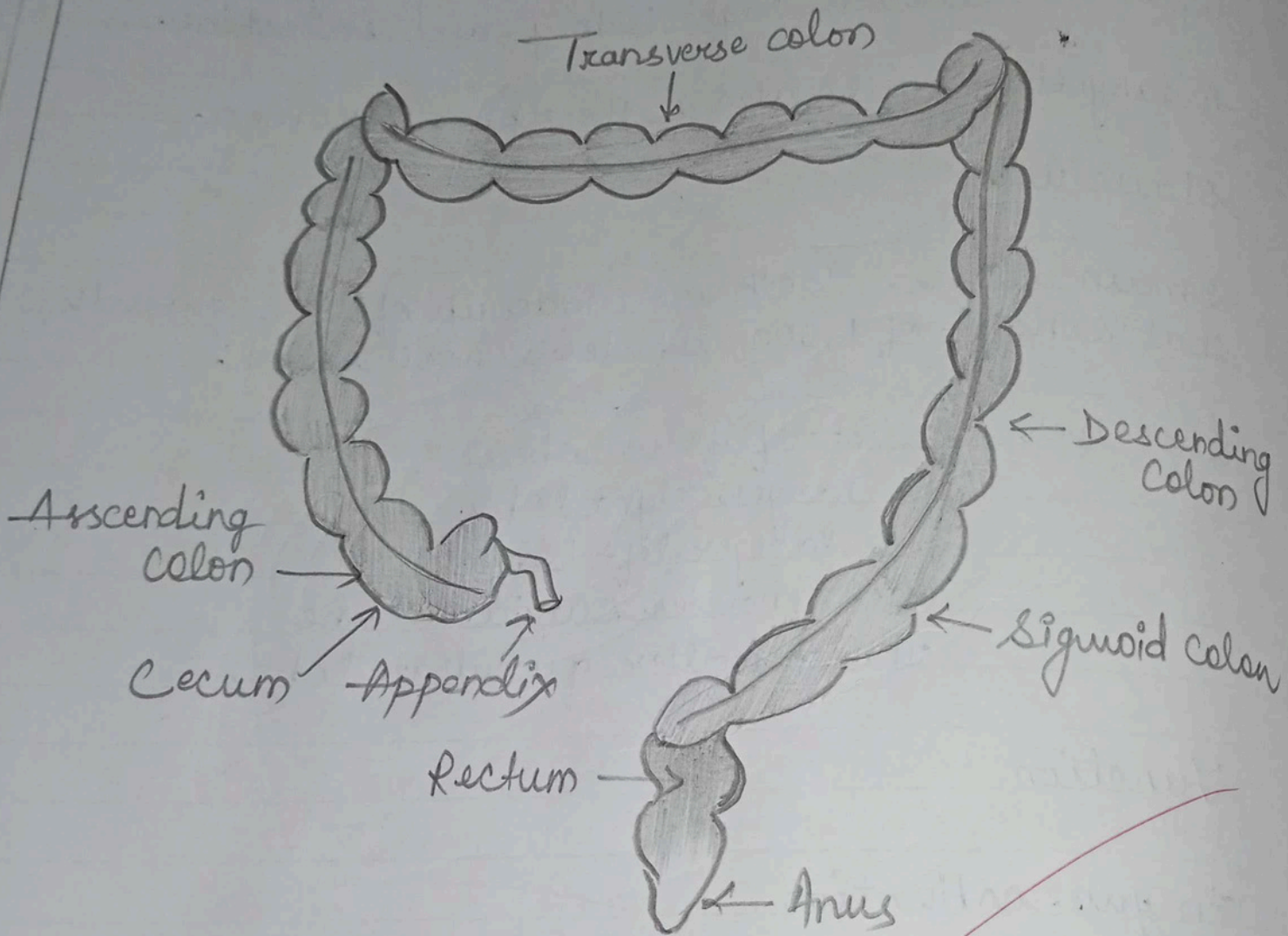


Fig: Large Intestine.

LARGE INTESTINE

- The large intestine is the portion of the digestive system most responsible for absorption of water from the indigestible residue of food.
- The large intestine is one long tube, but slightly different things happen in different parts of it. Its three parts are the colon, the rectum, and the anus.
- The large intestine consists of eight parts: cecum, appendix, ascending colon, transverse colon, descending colon, sigmoid colon, rectum and anal canal.

Function

- Absorbing water and electrolytes.
- Producing and absorbing vitamins.
- Forming and propelling feces toward the rectum for elimination.
- To absorb water and salts from the material that has not been digested as food, and get rid of any waste product left over.
- storage of feces.

LARGE INTESTINE

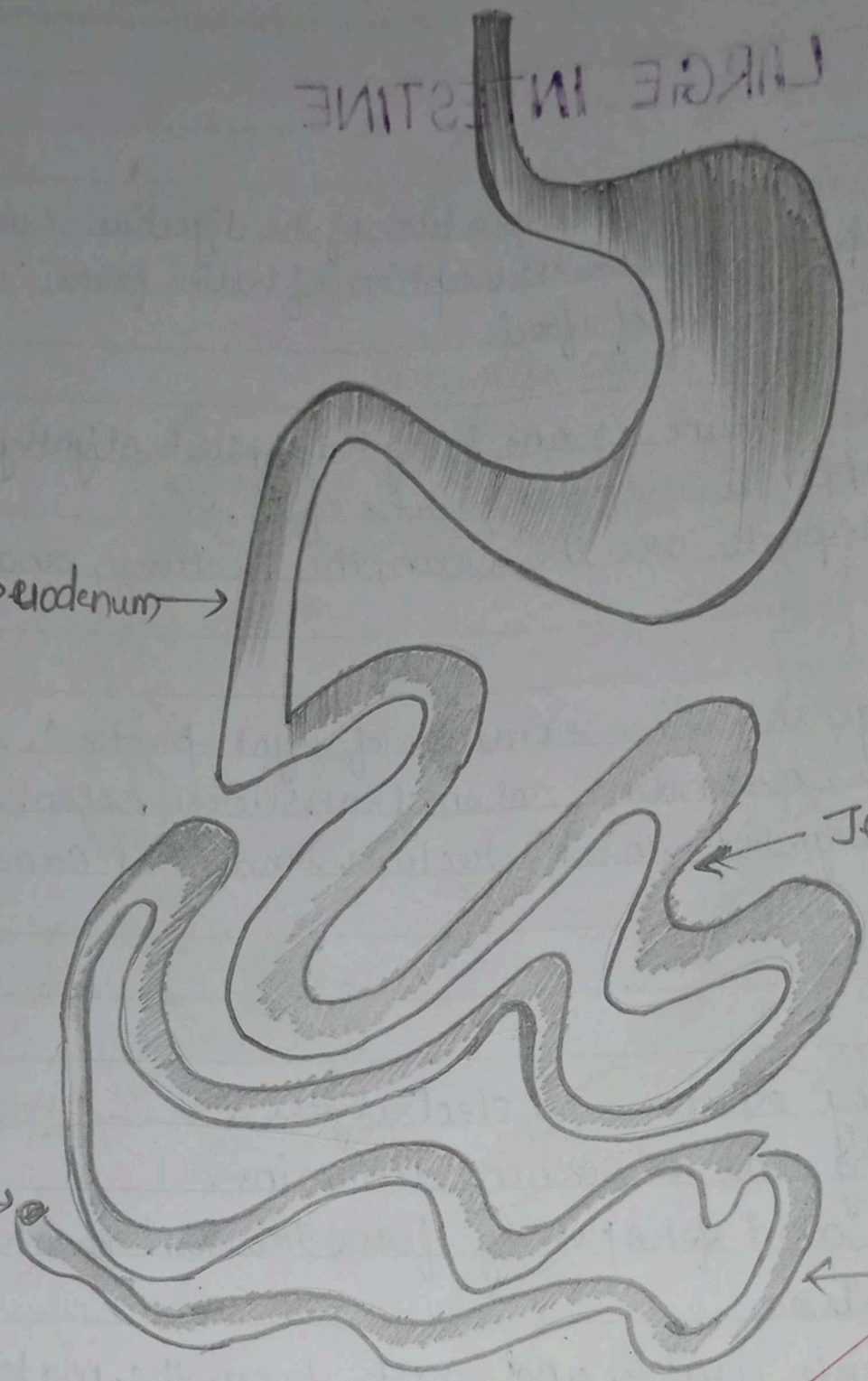
Deodenum →

Jejunum

To large intestine →

ileum

fig: Small Intestine



SMALL INTESTINE

- The small intestine, or small bowel, is a hollow tube about 20 feet long that runs from the stomach to the beginning of the large intestine.
- The small intestine breaks down food from the stomach and absorbs much of the nutrients from the food.

Structure

The small intestine is divided into the duodenum, jejunum and ileum.

The small intestine follows the general structure of digestive tract in that the wall has a mucosa with simple columnar epithelium, submucosa, smooth muscle with inner circular and outer longitudinal layers and serosa.

Function

- Involve in digestion of food and absorption of nutrients.
- Break down food.
- Absorb nutrients needed for the body.
- Get rid of the unnecessary components.
- Role in immune system.

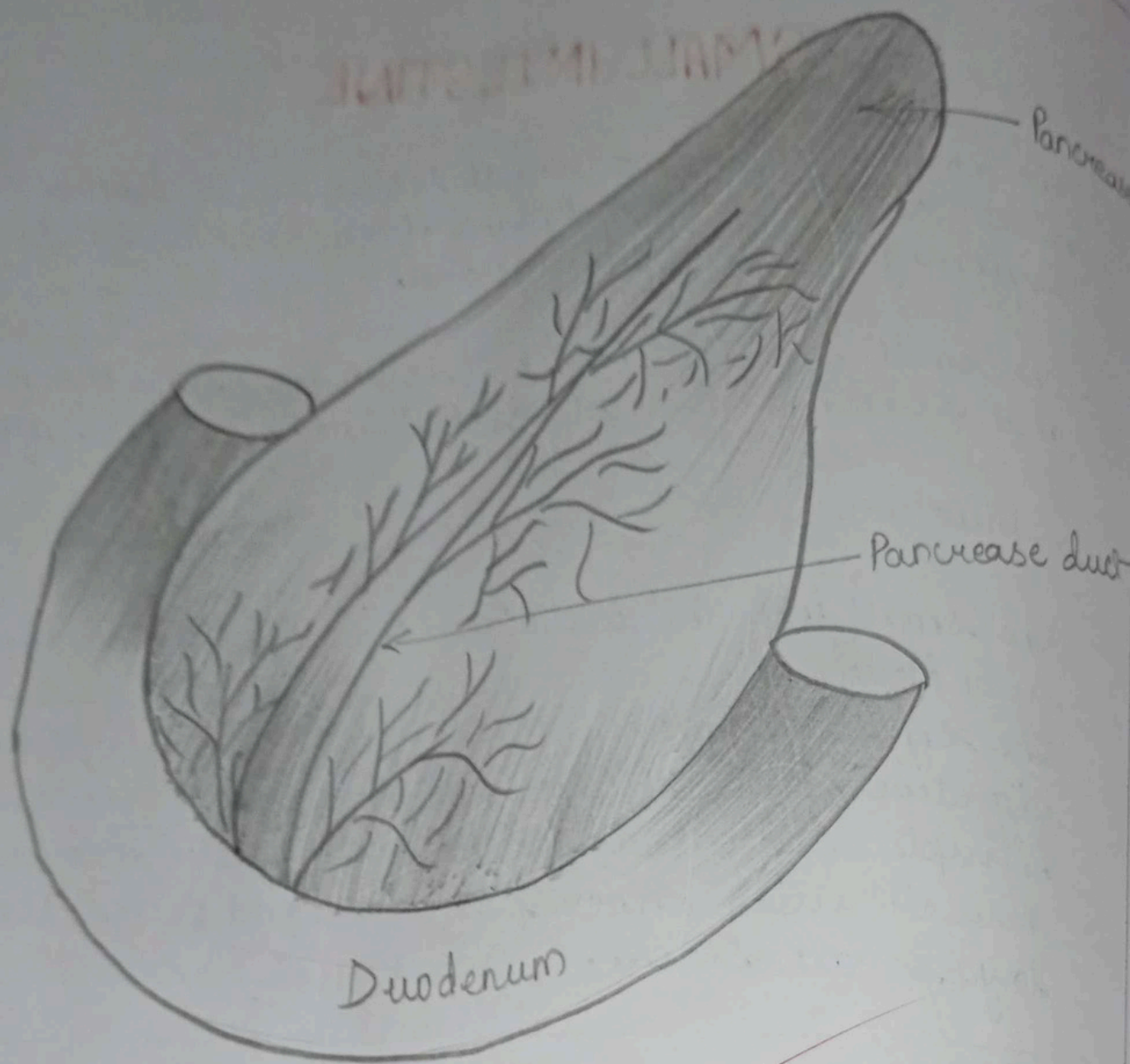


Fig: Pancreas

PANCREASE

- The Pancrease is a long, flat gland that lies in the abdomen behind the stomach.
- It produce enzymes that are released into small intestine to help with digestion.
- It also contains clusture of cells called islets of langerhans.

Structure

- Pancrease is a gland, about six inch long, located in the abdomen.
- It shaped like peave and is surrounded by the stomach, small intestine, liver, spleen and gallbladder.
- ~~Wide end~~ Wide end of the pancrease on the right side of the body is called head. Middle sections are the neck and body.

Function

- Pancrease creates natural juices called pancreatic enzymes to break down foods.
- Huge reserve capacity resection.
- Produce bicarbonate.

GALLBLADDER

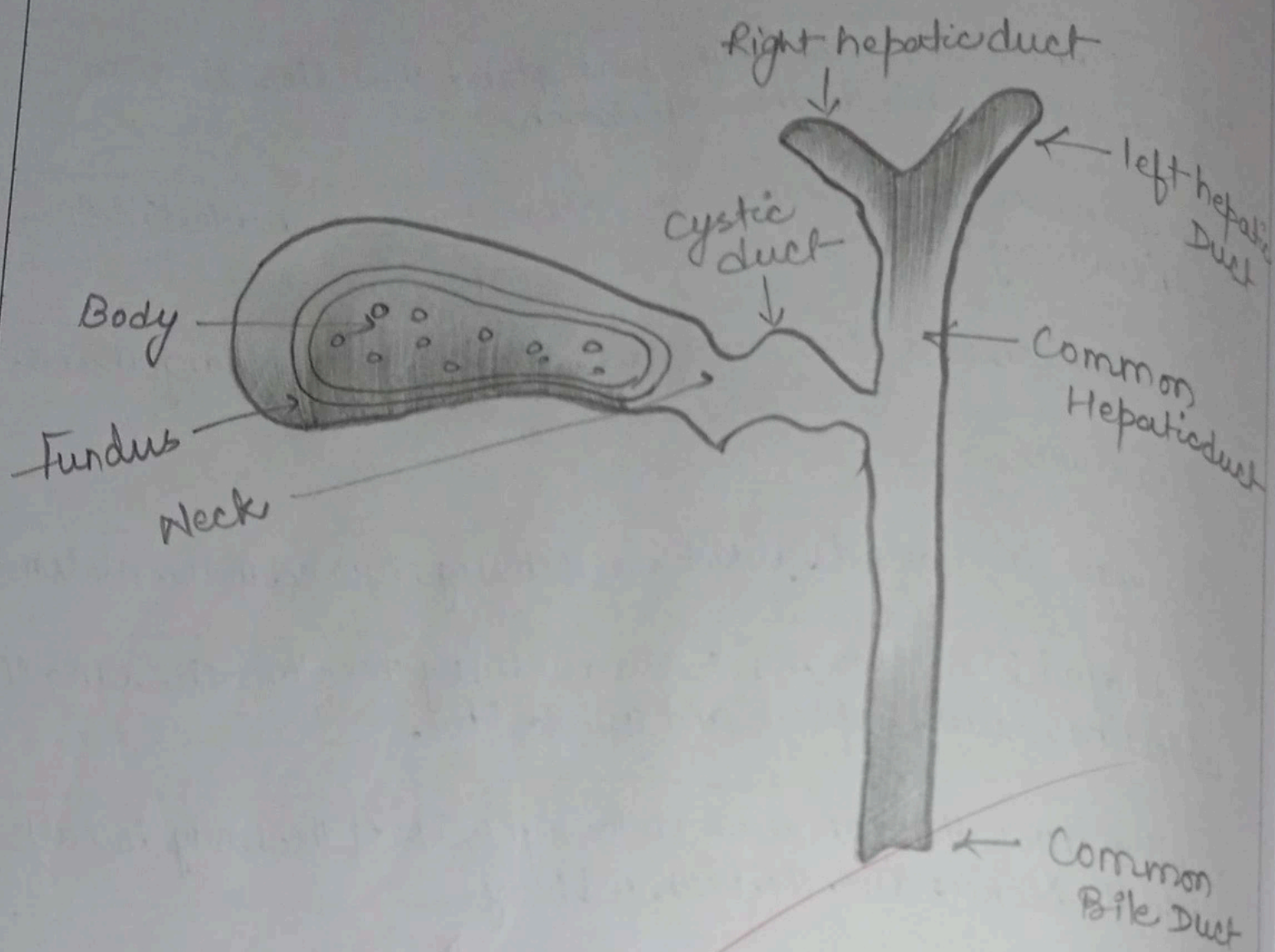


Fig: Gall bladder.

GALL BLADDER

- Gall bladder is a small, pear-shaped organ located under your liver that stores and releases bile.
- Bile is the fluid that produced by liver, helps in fat digestion.
- The gall bladder is made up of layers of tissue.
- About three to six inches (7.5 to 15 cm) long, located in the right upper side of the abdomen, under the liver.
- It get connected to the liver and intestine through small tubes called bile ducts.
- Parts of Gallbladder are fundus, Body, Neck (infundibulum).
- Function
 - Store Bile, and it get released into the duodenum when required.
 - Absorption of water and concentration of Bile.
 - It regulates pressure in the biliary system by appropriate dilatation or contraction.
 - Evacuation of Bile.

RESPIRATORY SYSTEM

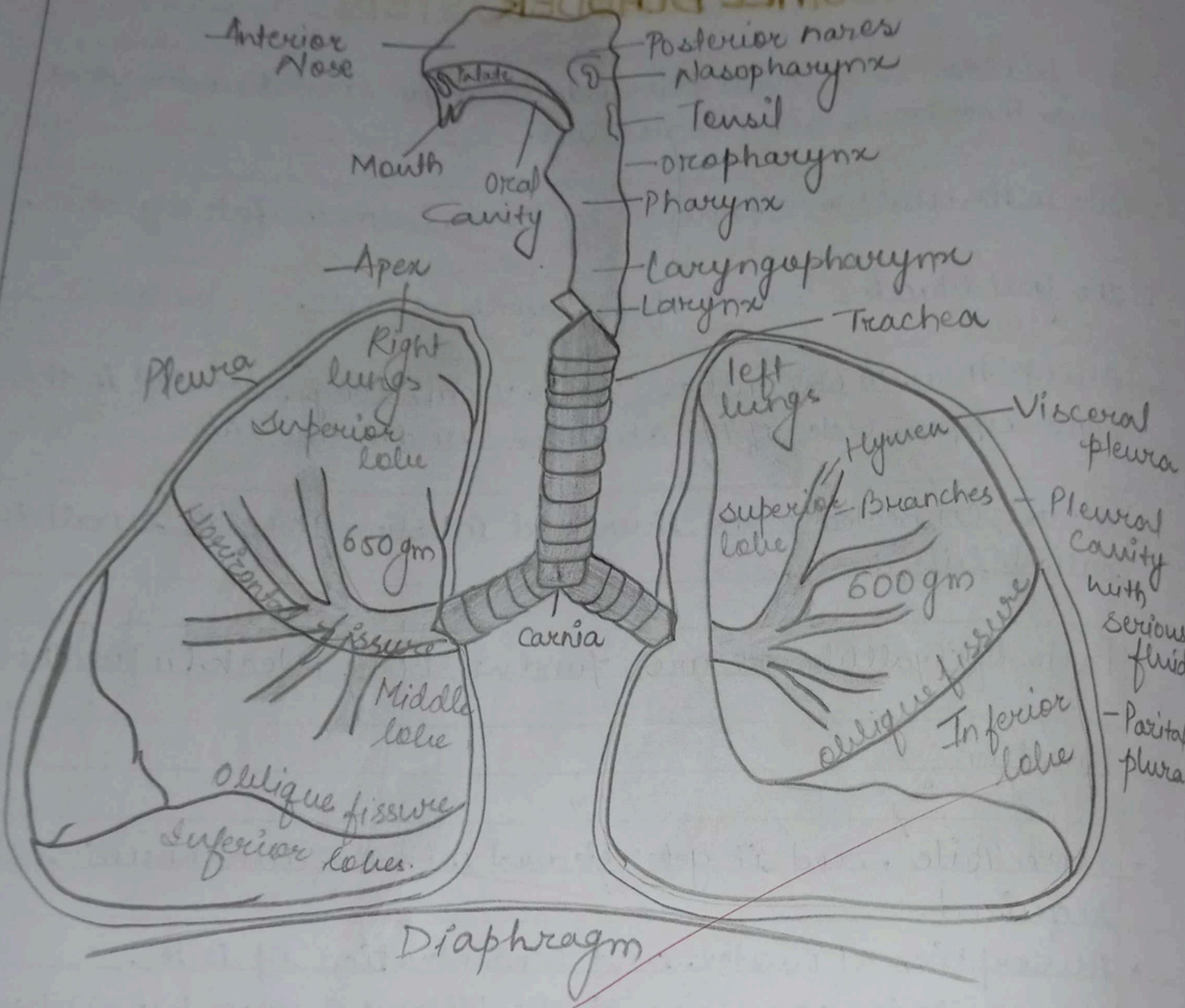


Fig: Respiratory system

RESPIRATORY SYSTEM

Respiratory system, the system in living organisms that takes up oxygen and discharges carbon dioxide in order to satisfy energy requirements.

Structure

A respiratory system consist of three parts:

- (i) A moist respiratory surface (i.e. alveoli).
- (ii) A means of bringing air into the body (i.e. lungs).
- (iii) A means of transporting the respiratory gases around the body (i.e. circulatory system).

Function

- 1 Protection.
- 2 Olfaction.
- 3 supplies the body with oxygen and disposes of CO_2 .
- 4 Control blood pH.
- 5 Produce sound.
- 6 Gas exchange.
- 7 Regulation of blood pH.
- 8 Voice production.
- 9 Clear the body from excess water and heat.
- 10 Filter inspired air.

LUNGS

- Lungs are the part of the respiratory system, a group of organs and tissues that work together to help you breathe.
- One of a pair of organs in the chest that supplies the body with oxygen and removes carbon-dioxide from the body.

Structure

- Right lungs divided in three lobes upper, middle and lower lobes ^{by} oblique fissure and horizontal fissure.
- Left lungs divided into two lobes upper and middle lobes by oblique fissure.

Function

- Gas exchange \rightarrow O_2 & CO_2 .
- sound production.
- Breathing - movement of air.
- olfactory Assistance - sense of smell.
- Protection - from dust and microbes entering body through mucus production, cilia and coughing.

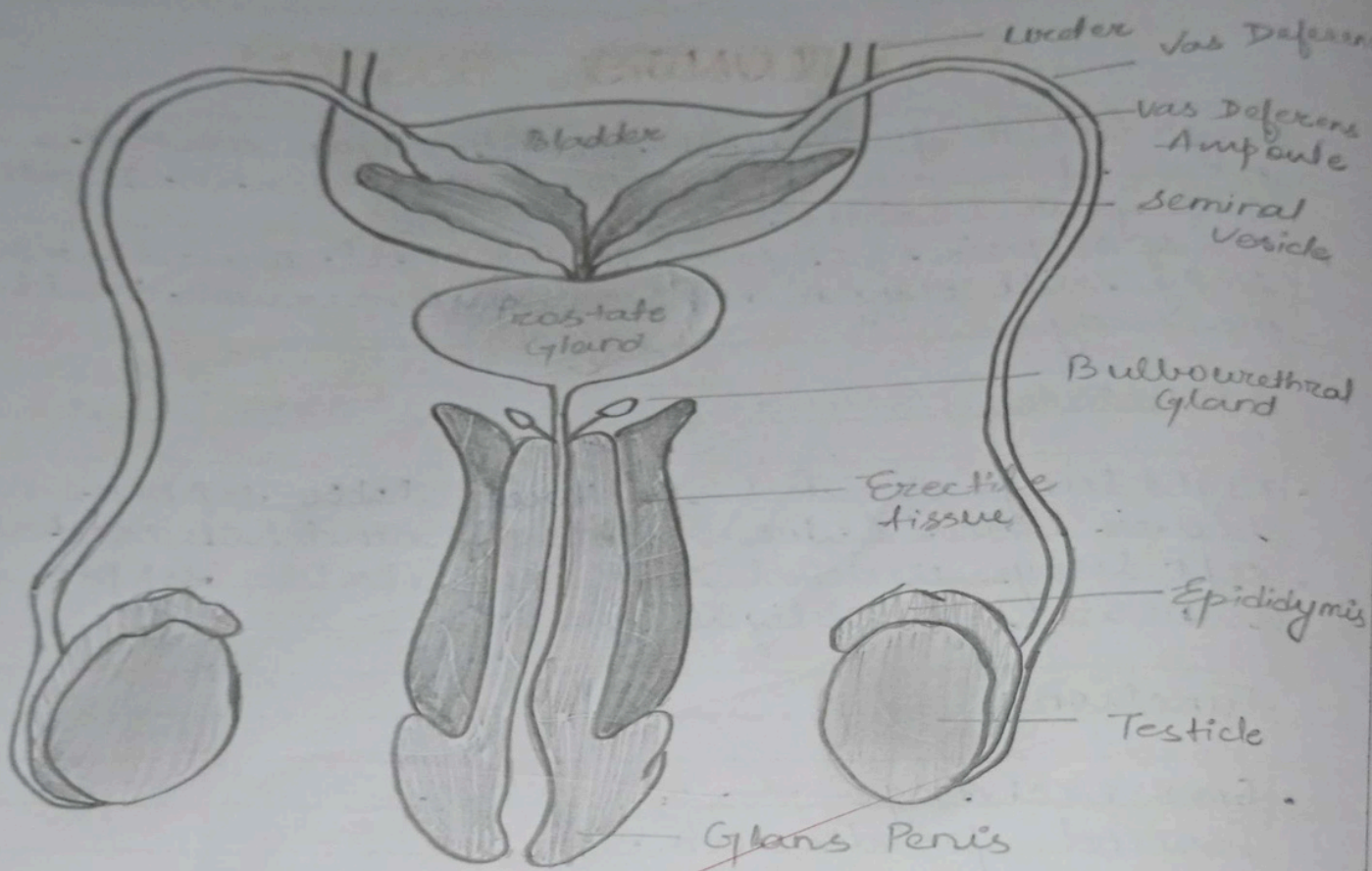


Fig :- Male Reproductive system

MALE REPRODUCTIVE SYSTEM

The male reproductive system consist of number of sex organs that plays important role in the process of reproductive system.

where organ located on the outside of the body with in the pelvis/pelvic.

Male reproductive system

external organs

- Penis
- scrotum

internal organs.

- Testis
- Epididymis
- vas deference
- Accessory gland
- Bulbourethral gland
- seminal vesicle
- Prostate gland

Function

- Produces and stores sperm.
- Deliver sperm and to secrete testosterone.
- to ensure survival of the species
- storing urine.
- store mature sperms.
- shows the exit point of the urethra.

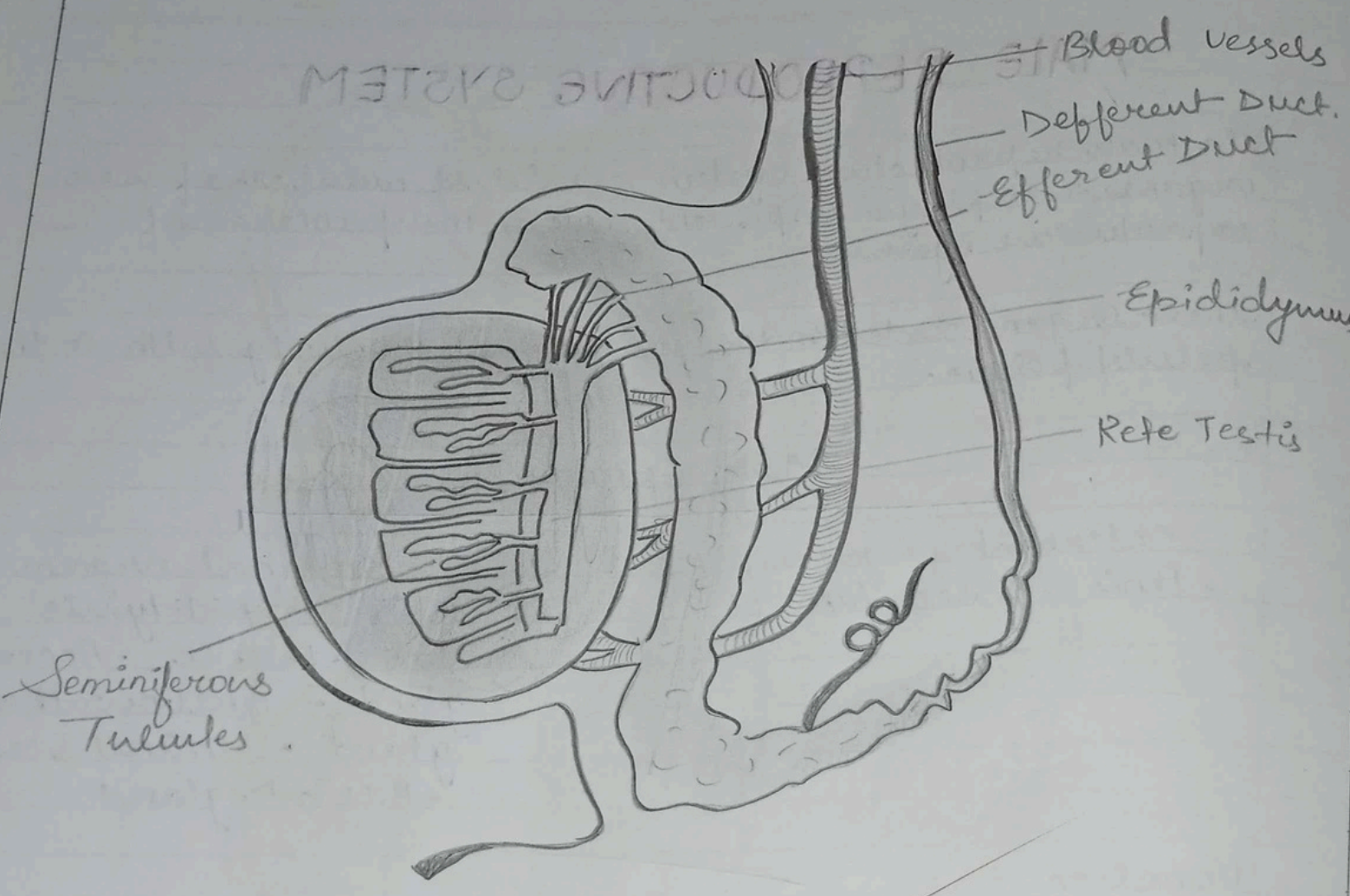


fig : Testis

TESTIS

The testis or testical are paired reproductive glands, suspended in the scrotum by the spermatic chords, testis are about 5 cm long and 2.5 cm wide and 3 cm thick, its weight about 10-15 gm.

It produces sperm and hormones testosterone, the primary male sex hormone.

Testis are made up of 3 layers of tissues

- (1) Tunica vaginalis.
- (2) Tunica albuginea.
- (3) Tunica vasculosa.

Function

1. sperm are produced by the process of spermatogenesis in the seminiferous tubules.
2. They are stored and mature the long convoluted epididymis.
3. sperm production in male begins at puberty and continue throughout life often into old age, under the influence of testosterone.

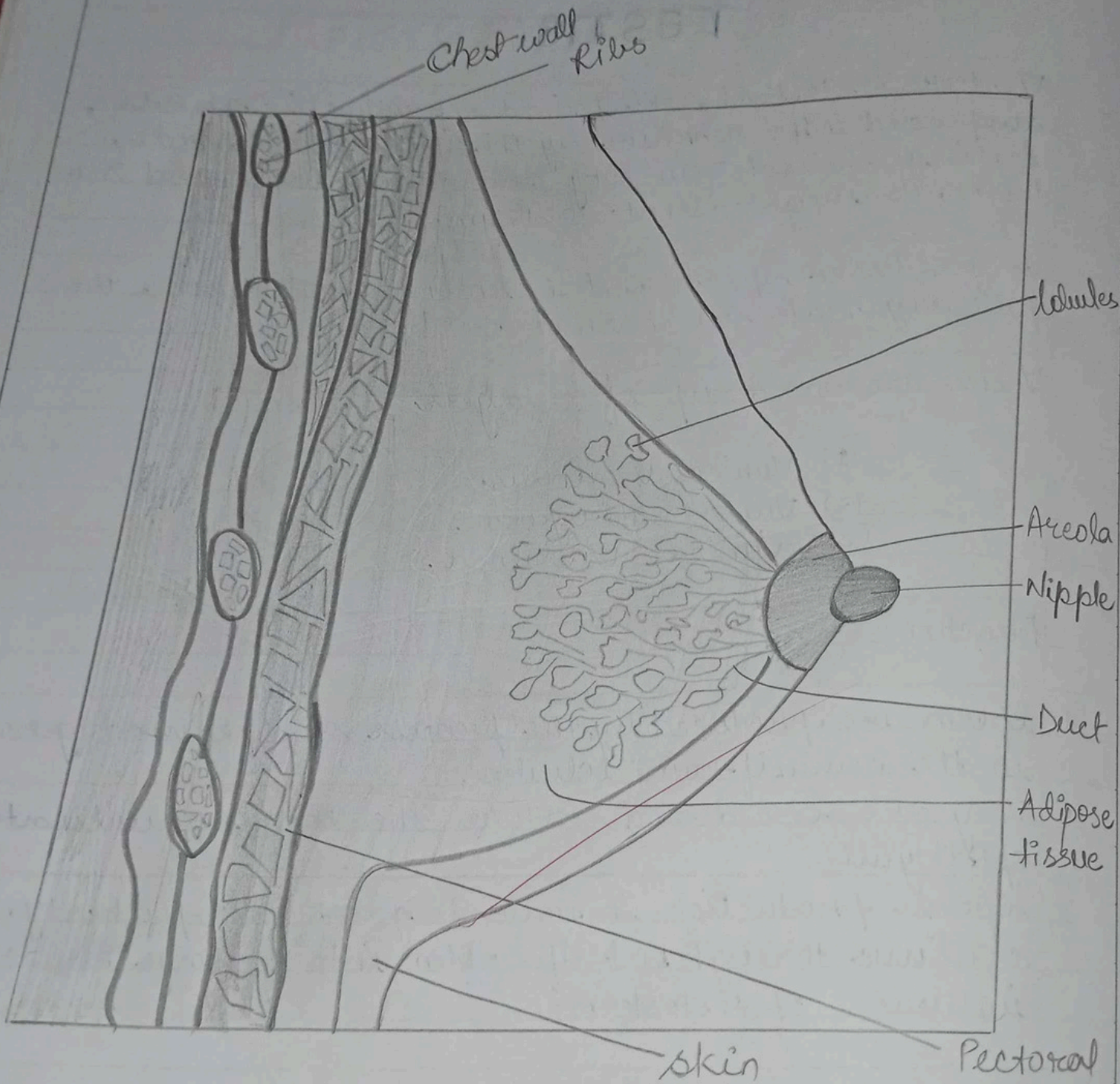


Fig: Breast

BREAST

- Breast or mammary gland are accessory glands of the female reproductive system.
- Mammary gland exist in both series (male and female).
- They remain rudimentary in male and become functional at puberty in female.

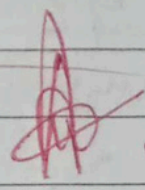
In female, the breast are small and immature until puberty. Grow and develop under influence of oestrogen, Progesteron.

Structure

- The breast contains a mass of glandular, fatty, and fibrous tissues and contains no muscle tissues.
- Each breast contain about 15-20 lobes, each lobes contain a number of glandular structures called alveoles, where milk is produced.

Function

- The breast is responsible for lactating also known as producing milk.

 19/10/22

BOVARY

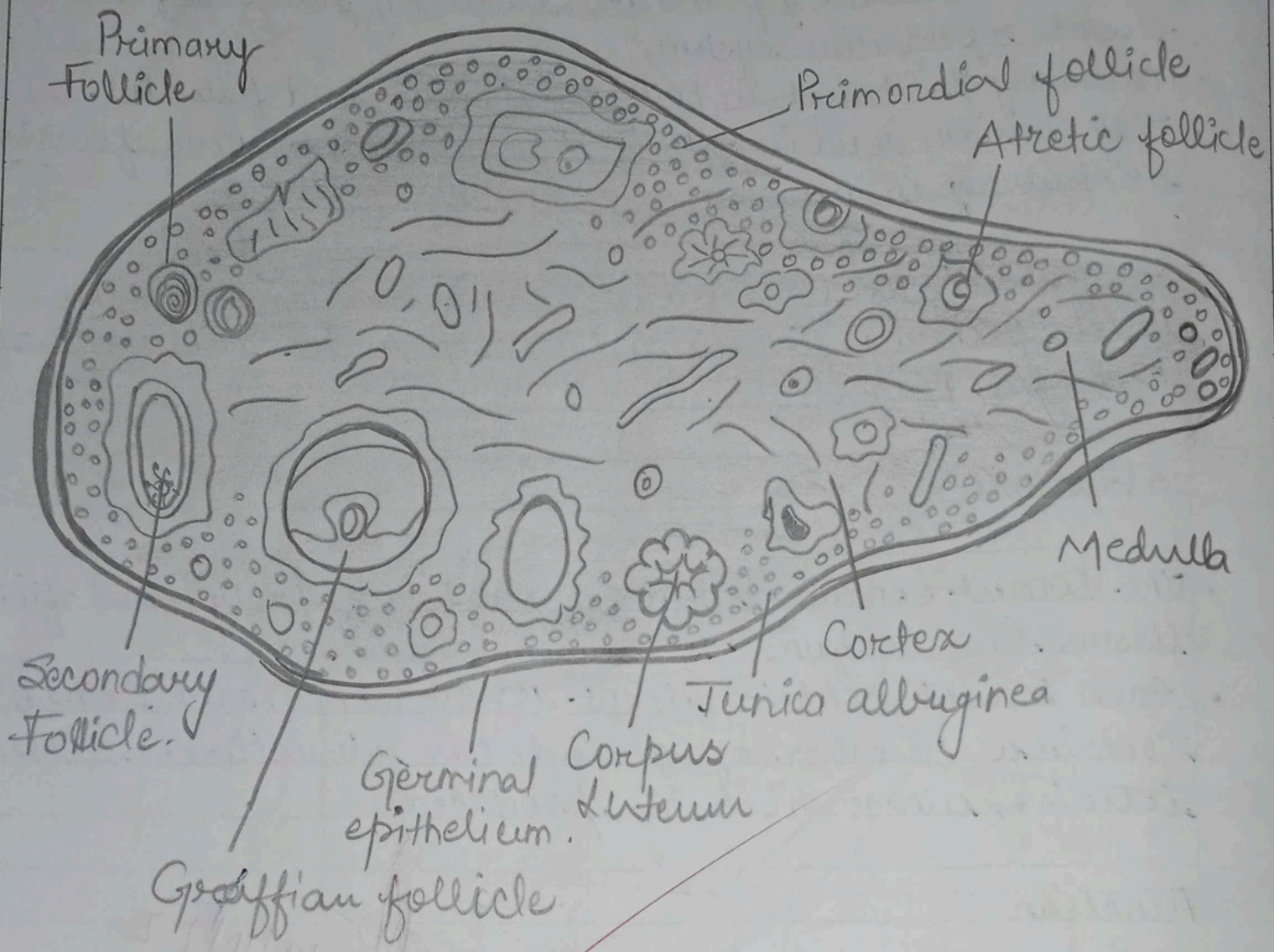


Fig: ovary

OVARY

- The ovary, often found in pairs, female gonads.
- Ovary is about a size of almond.
- Measure about 3cm in length, 2cm wide, 1cm in thick.
- Having two layer of tissues.
- Outer cortex and inner medulla.
- Located alongside the lateral wall of the uterus in a region called ovarian fossa.
- The fossa usually iliac artery and in front of the uterus and the internal iliac artery.

Function

- The ovary is the organ in which the female gametes are stored and develop prior to ovulation.
- The endocrine function and releases hormones essential for the physiological change during reproductive cycle. The source of the hormone is oestrogen and progesterone is the follicle itself.
- Releases gonadotrophic (FSH and LH).
- Maturation controlled by the hypothalamus and the anterior pituitary glands.

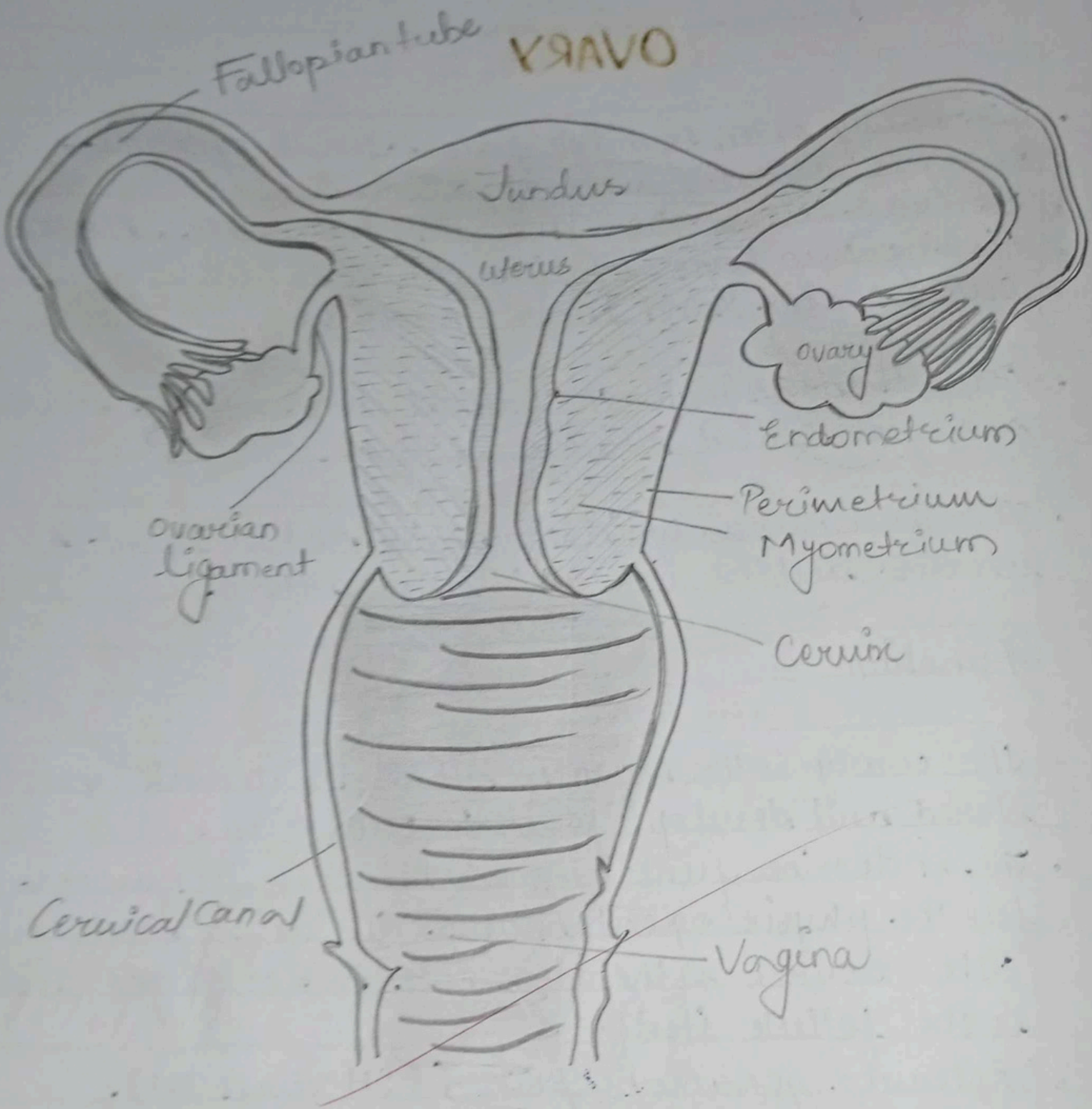


Fig: Female Reproductive System

FEMALE REPRODUCTIVE SYSTEM

- Female gametes are called ova.
- Female reproductive system consist of internal genitalia and external genitalia.
- The tissues, glands and organs involved in producing offsprings.

Structure

- Internal organ of female reproductive system contains the vagina, uterus, fallopian tubes, and ovaries.
- Internal genitalia include three-part system of ducts - the uterine tubes, the uterus, and the vagina.
- The primary reproductive organs, or gonads, consist of the ovaries in pairs.

Function

- Produces the female egg cells.
- Transports eggs to the site of fertilization.
- The fertilization occurs in the fallopian tube.
- Produce female sex hormones, that maintain the reproductive cycle
- Give birth to new baby.
- Support and protect developing embryo.

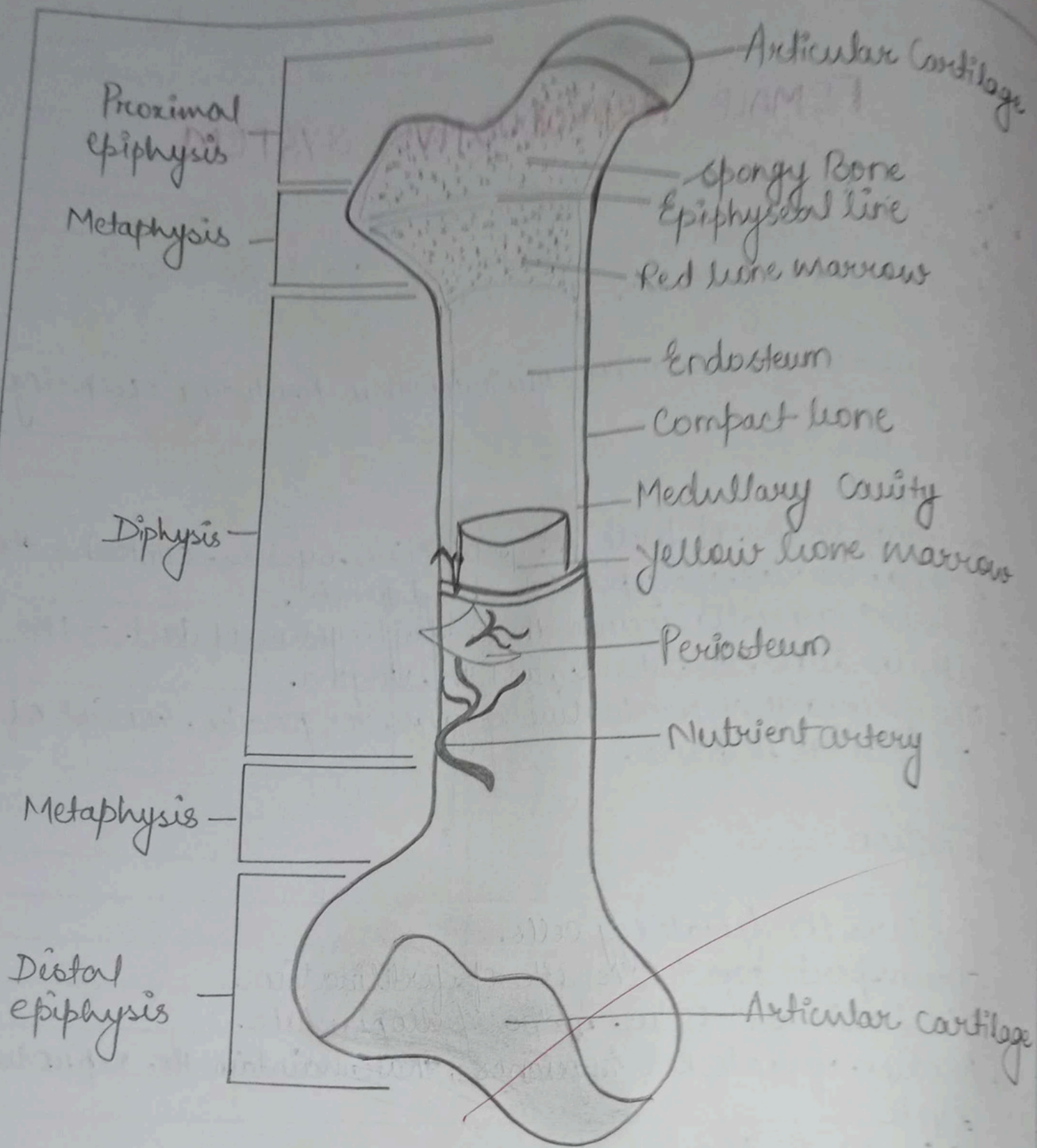


Fig: Bone

BONE

- Bone is living tissue that makes up the body's skeleton.
- Bone is one of the hardest substance or part of skeleton.
- A highly specialised connective tissue of the body in which the ground substance is impregnated with calcium salts as a result of which it is very rigid.

Structure

Compact or cortical bone and spongy or trabecular bone.

Types of Bone

- Long Bone
- Irregular bone
- Sesamoid bone
- Short bone
- Flat bone

Function

- Provide shape and support for the body, as well as protection for some organs.
- Calcium storage and muscle attachment.
- Produce blood cells.

~~17/11/22~~