

# UPDAAN

## 2025

### LIFE PROCESSES ✓

Biology

Lecture 11

By - SAMRIDHI SHARMA Ma'am



# Topics to be covered

- 1 Excretion in human beings ✓
- 2 Excretion in plants ✓
- 3 MCQ practice and Homework ✓





# Q. Think and answer

Which of the following is not involved in translocation ?

☒ A Vessels → Xylem →  $H_2O$

☐ B Sieve tubes

☐ C Companion cells

☐ D Both B and C

[Involved]

Food transportation

Phloem

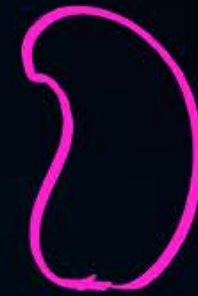




## Question of the Day



Average size and weight of a single human kidney



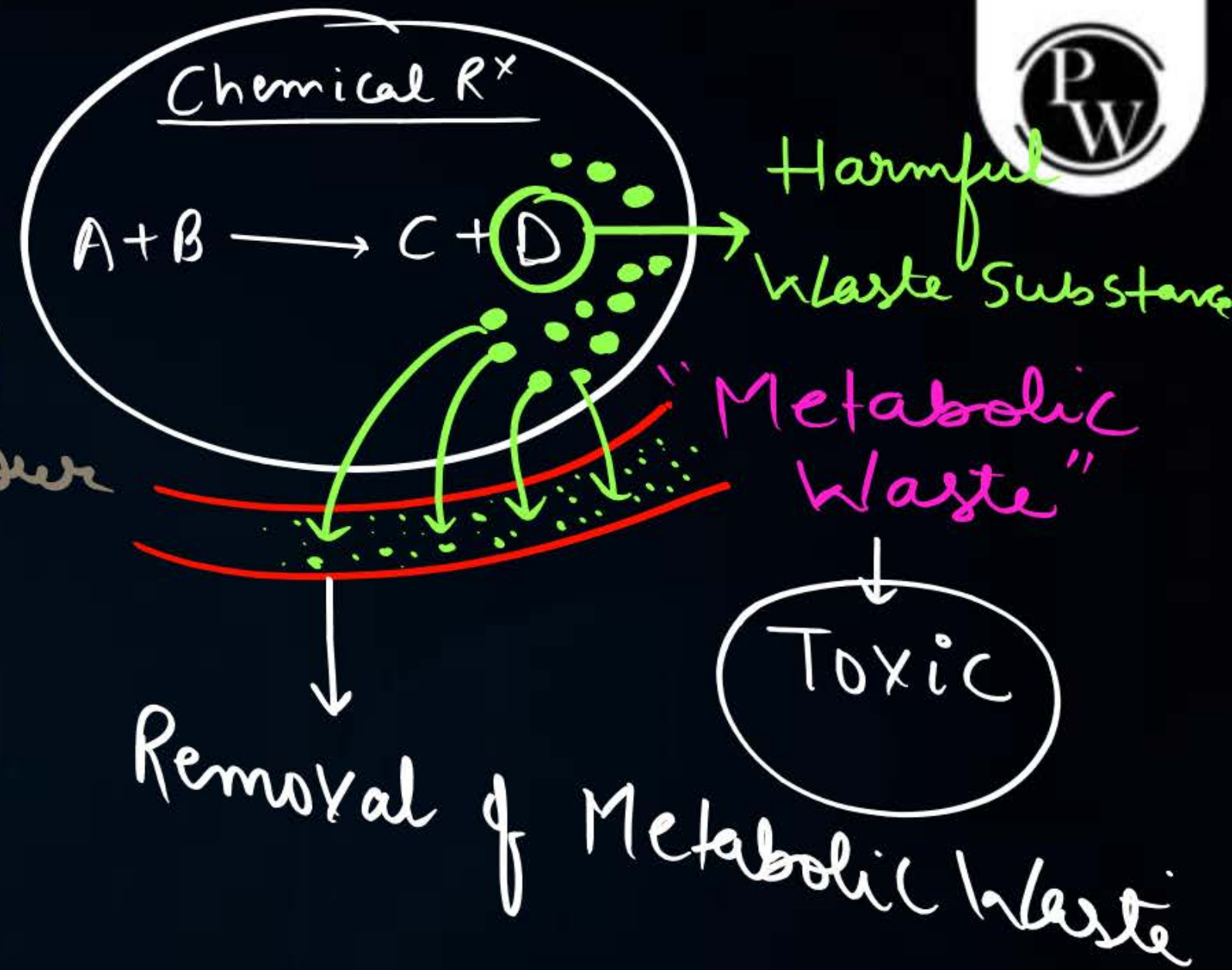


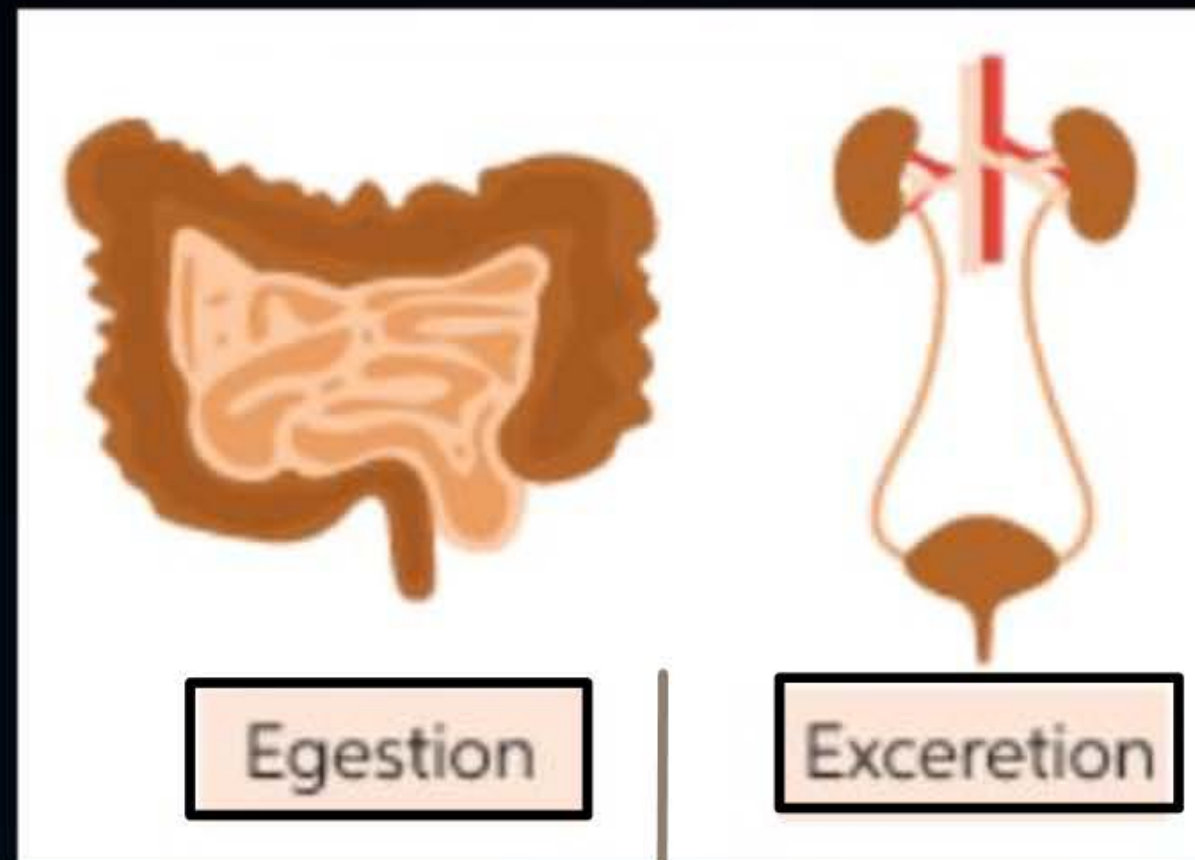


## Excretion

\* A process by which a living organism remove the harmful Metabolic Waste is known as "Excretion"

Various Metabolic Reactions are Taking place in our Cells



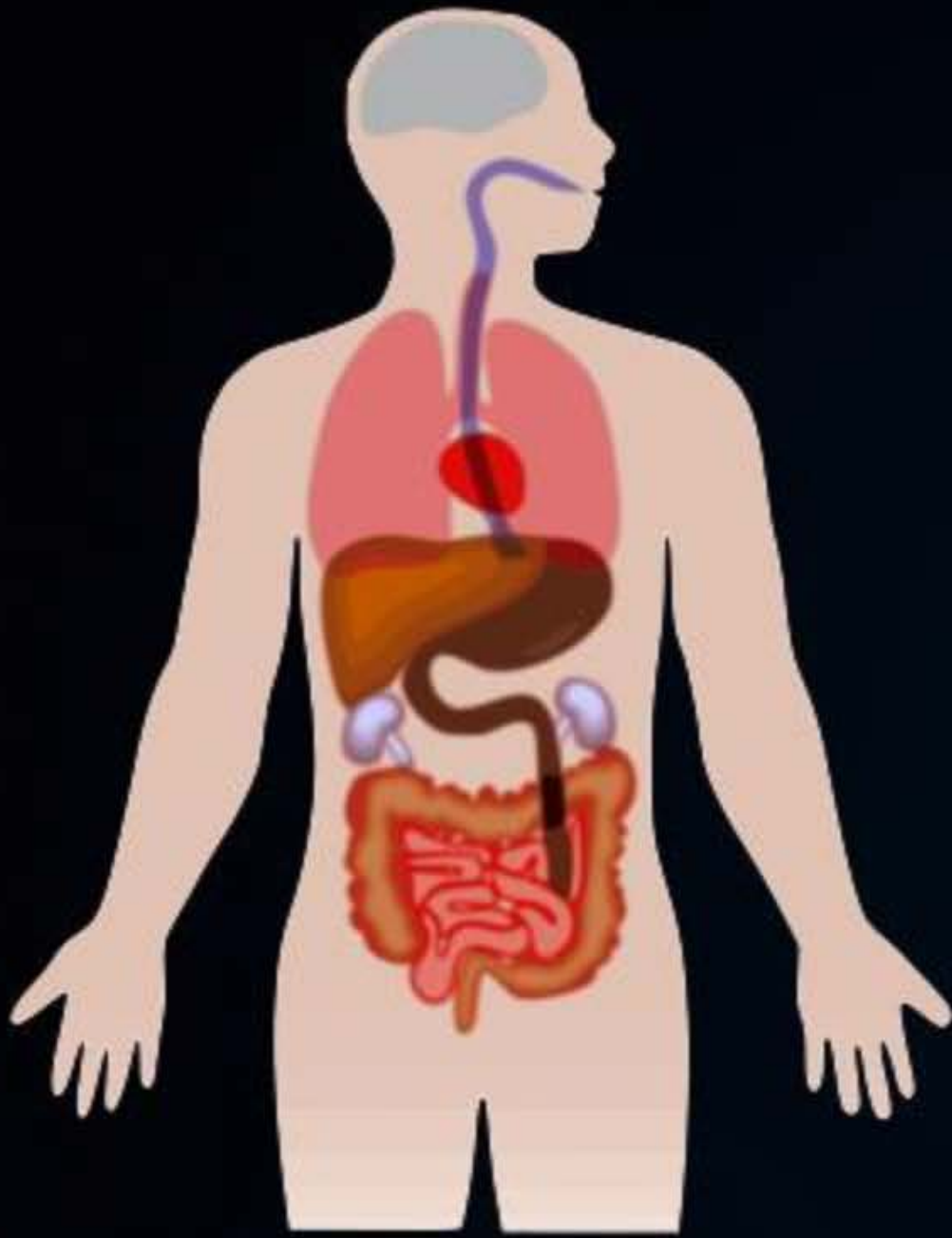


#Ch

- Removal of undigested & unabsorbed food is called Egestion
- Digestive system involved

- Removal of harmful Metabolic waste produced during Metabolic R<sup>x</sup>
- EXcretory system involved





## Metabolic waste

- Carbon dioxide
- Excess Water
- Excess mineral salts

produced during  
Respiration in our cell

Exhale out

Sweating

## Nitrogenous waste

Nitrogen Containing Waste Compounds.

- ① Urea
- ② Lactic Acid
- ③ Ammonia
- ④ Creatinine

Blood

Filteration  
of blood

Blood

Kidney

## Common nitrogenous waste



- Most aquatic animals including many fishes → Ammonia
- Birds, insects, Reptiles → Uric Acid
- Mammals, Most Amphibians → Urea  
↓  
human beings.



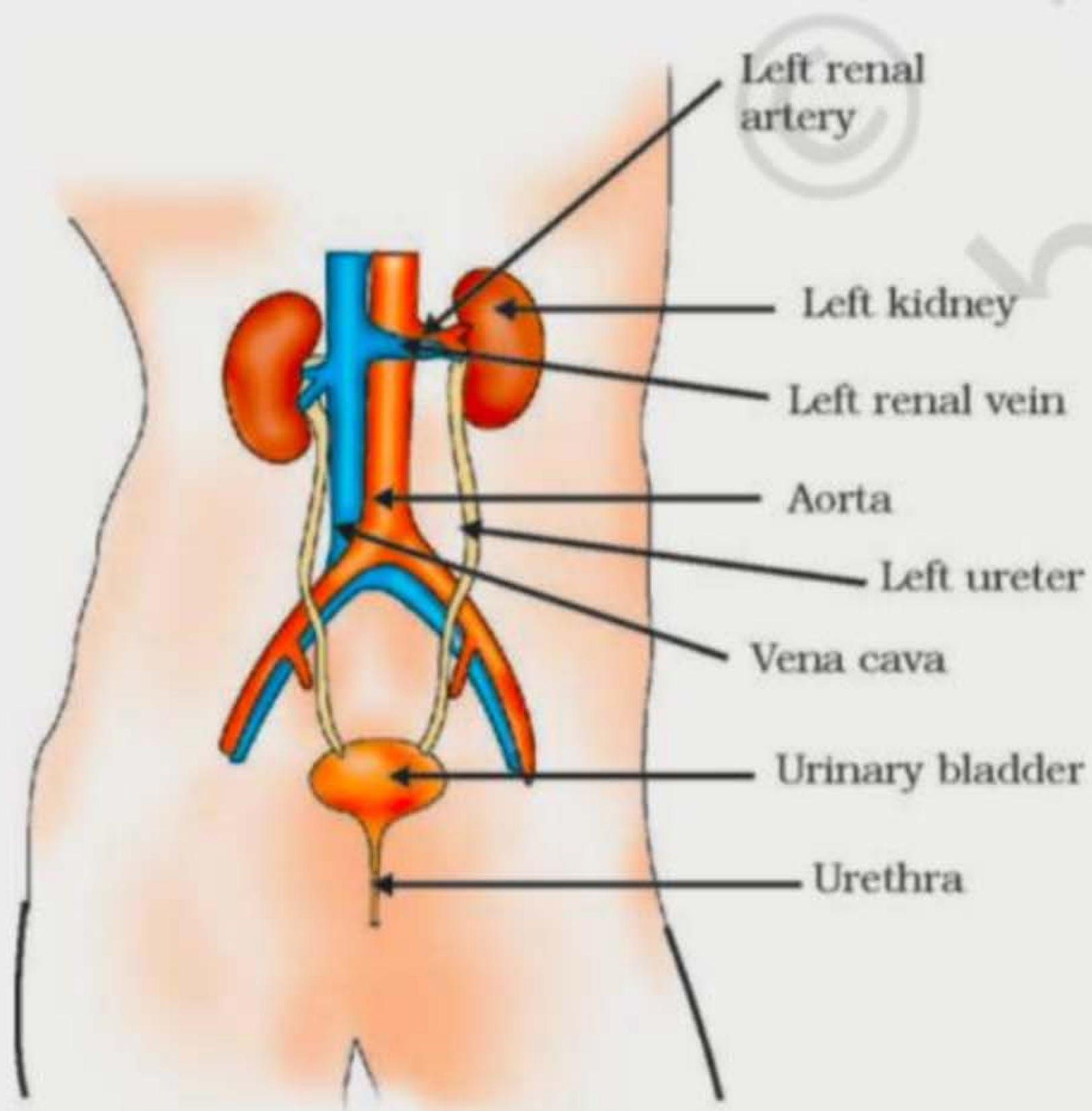
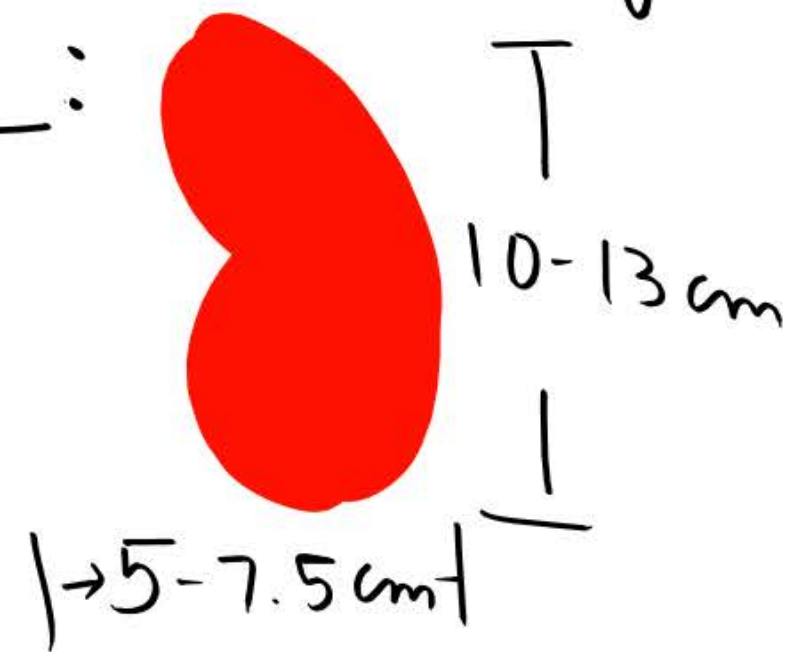
# Human excretory system

- Kidney (2):

→ Both of them are placed on either side of the backbone.

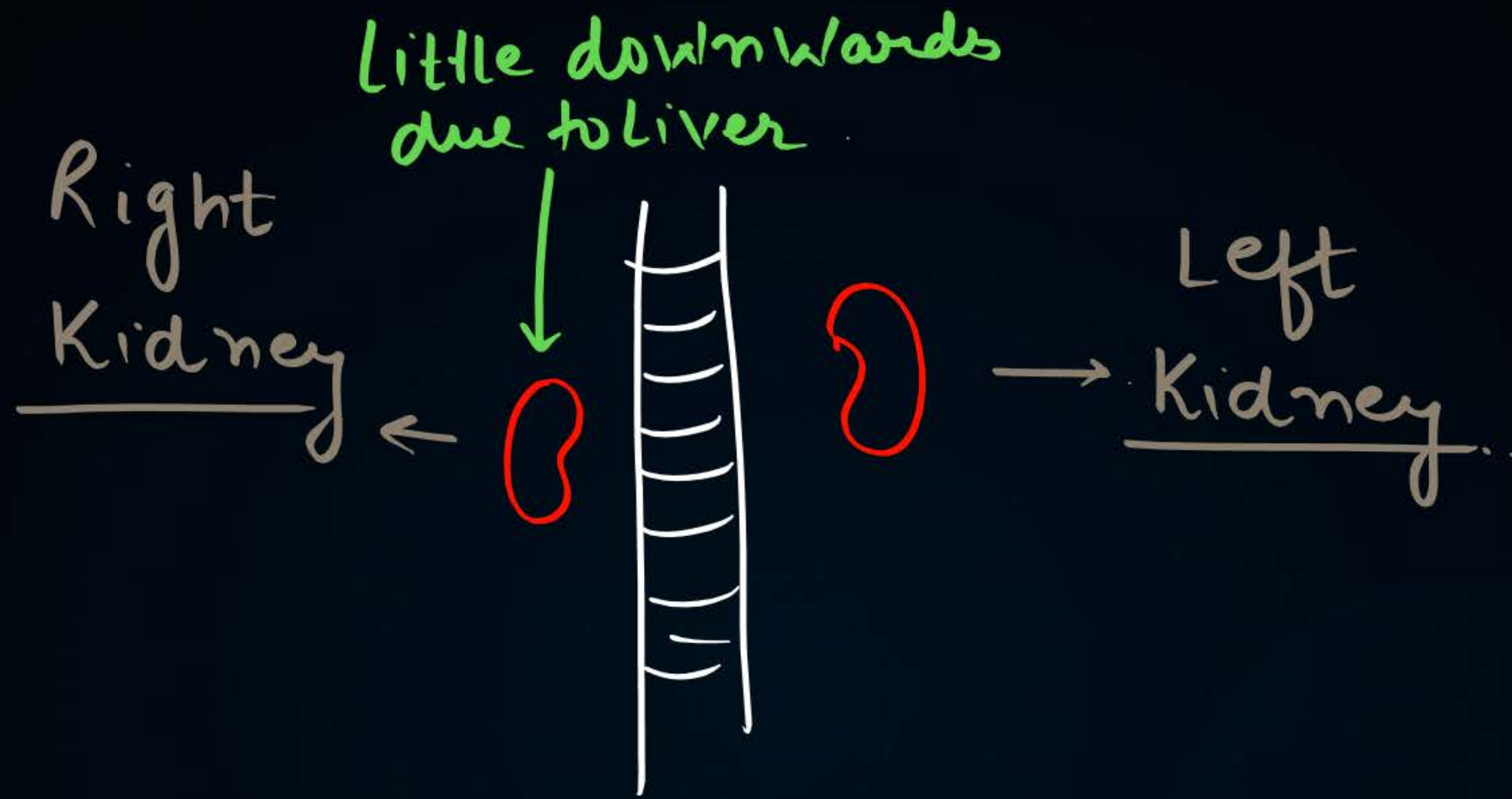
→ Average Weight : 120-150 gm

→ Average Size :



**Figure 6.13**

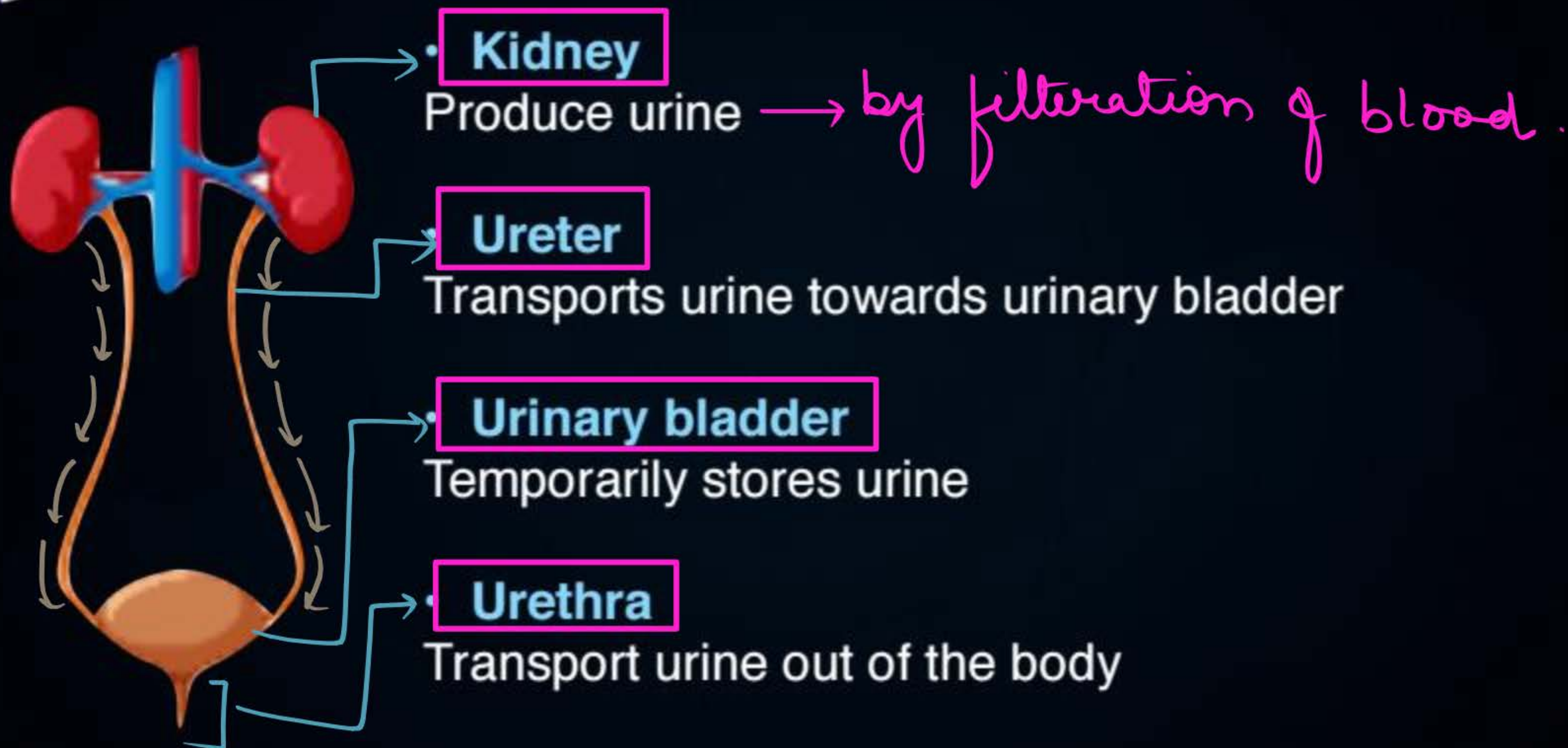
*Excretory system in human beings*



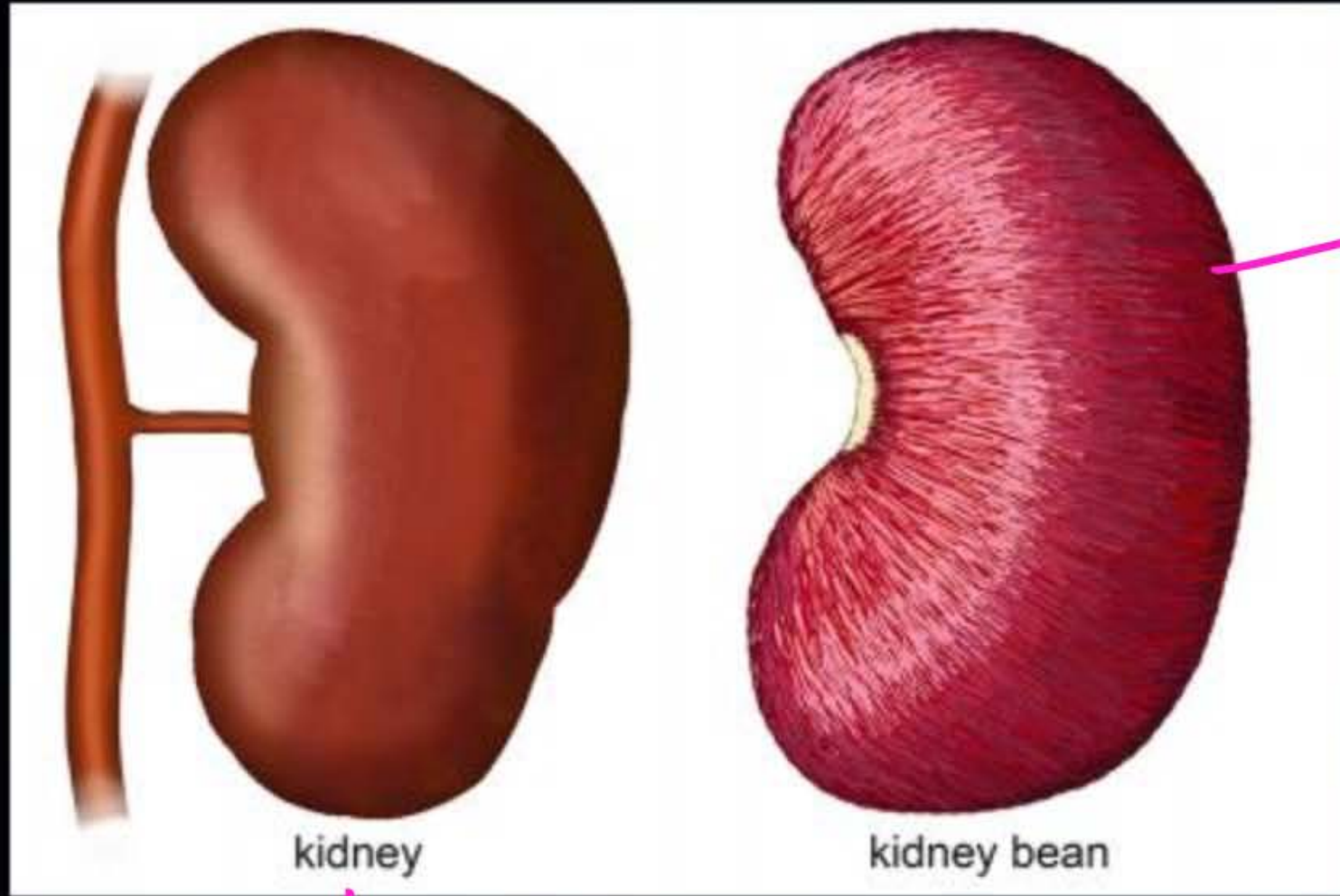




# Human Excretory System







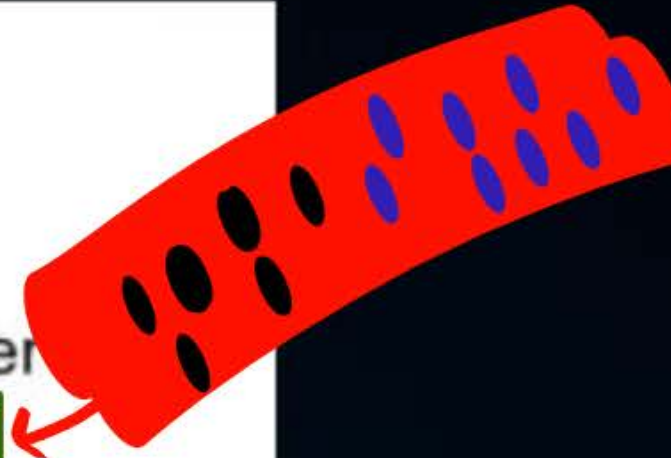
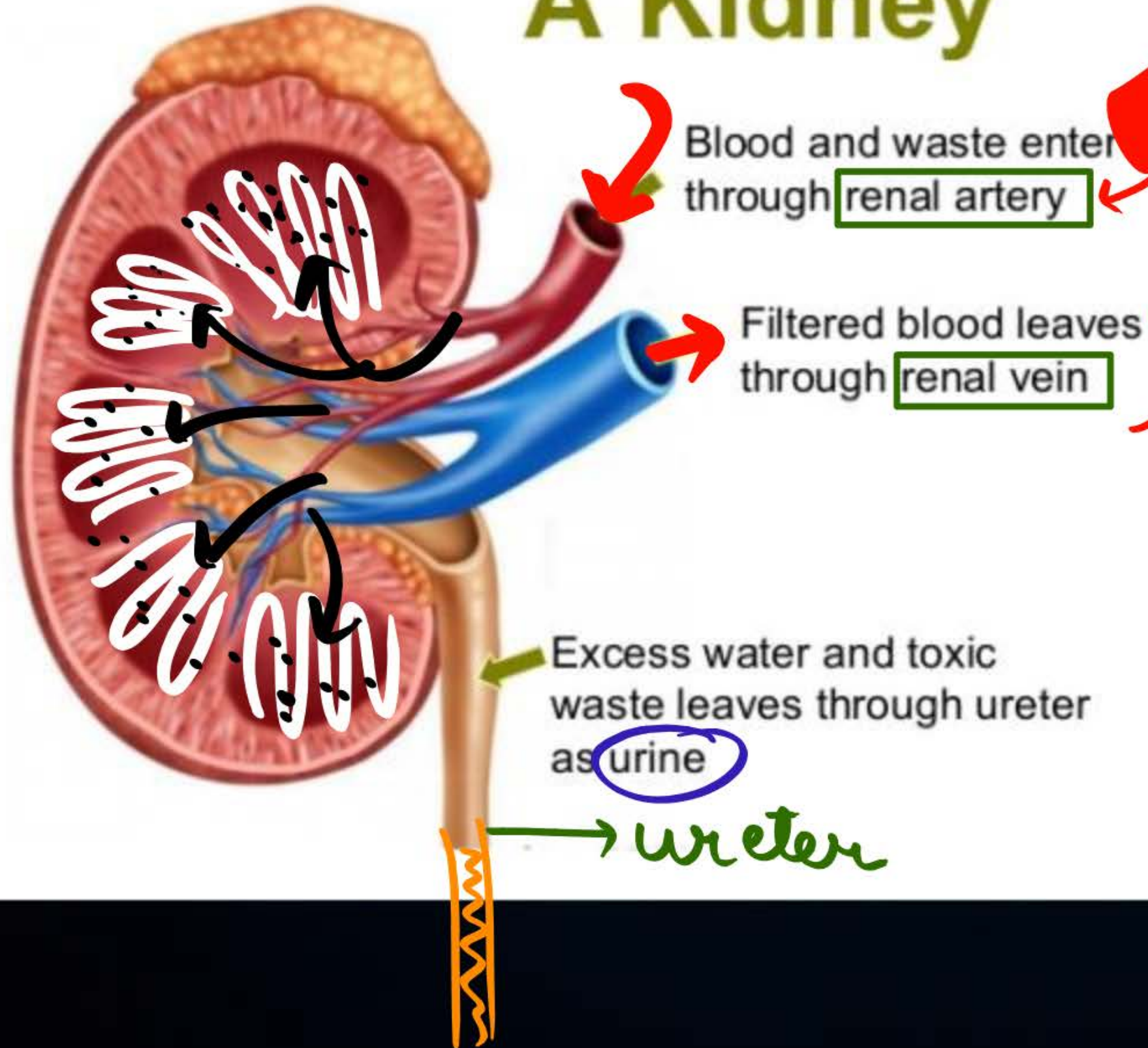
Rajma



Kidney-bean Shaped



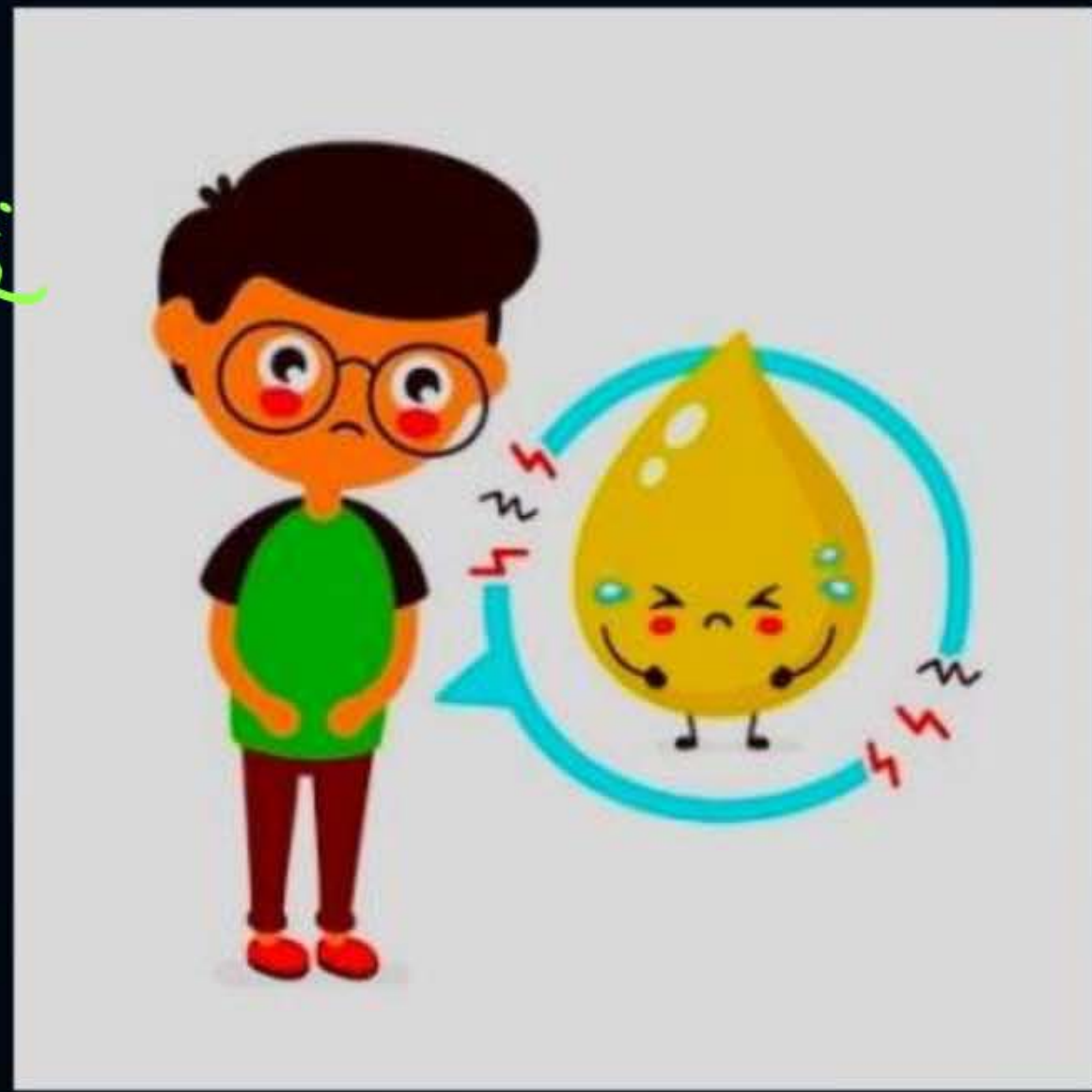
# A Kidney



To get rid  
of the harmful  
Metabolic Waste

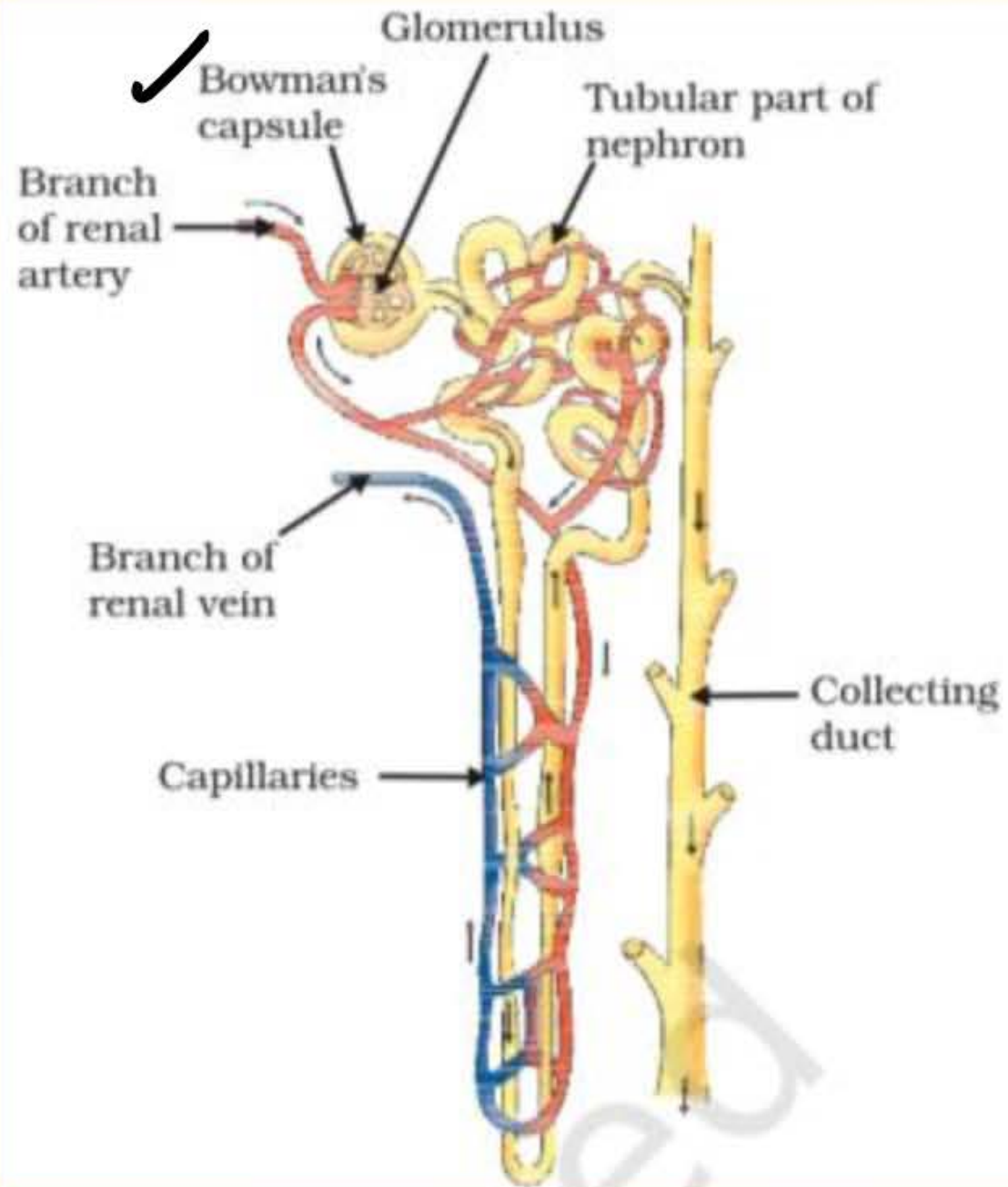
# WHY & HOW is urine produced?

Glomerulus  
↑  
filtration  
of blood.  
↓  
Urine  
↓  
1.5 l - 2 l





# Nephron



Structural and functional unit of kidney. (Nephron)

Helps in filtration of blood.

Urine

Balance of fluid is maintain

Millions of nephron in each kidney



# Parts of Nephron

Tubule



① Bowman's Capsule

② Tubular part of Nephron

③ Collecting duct

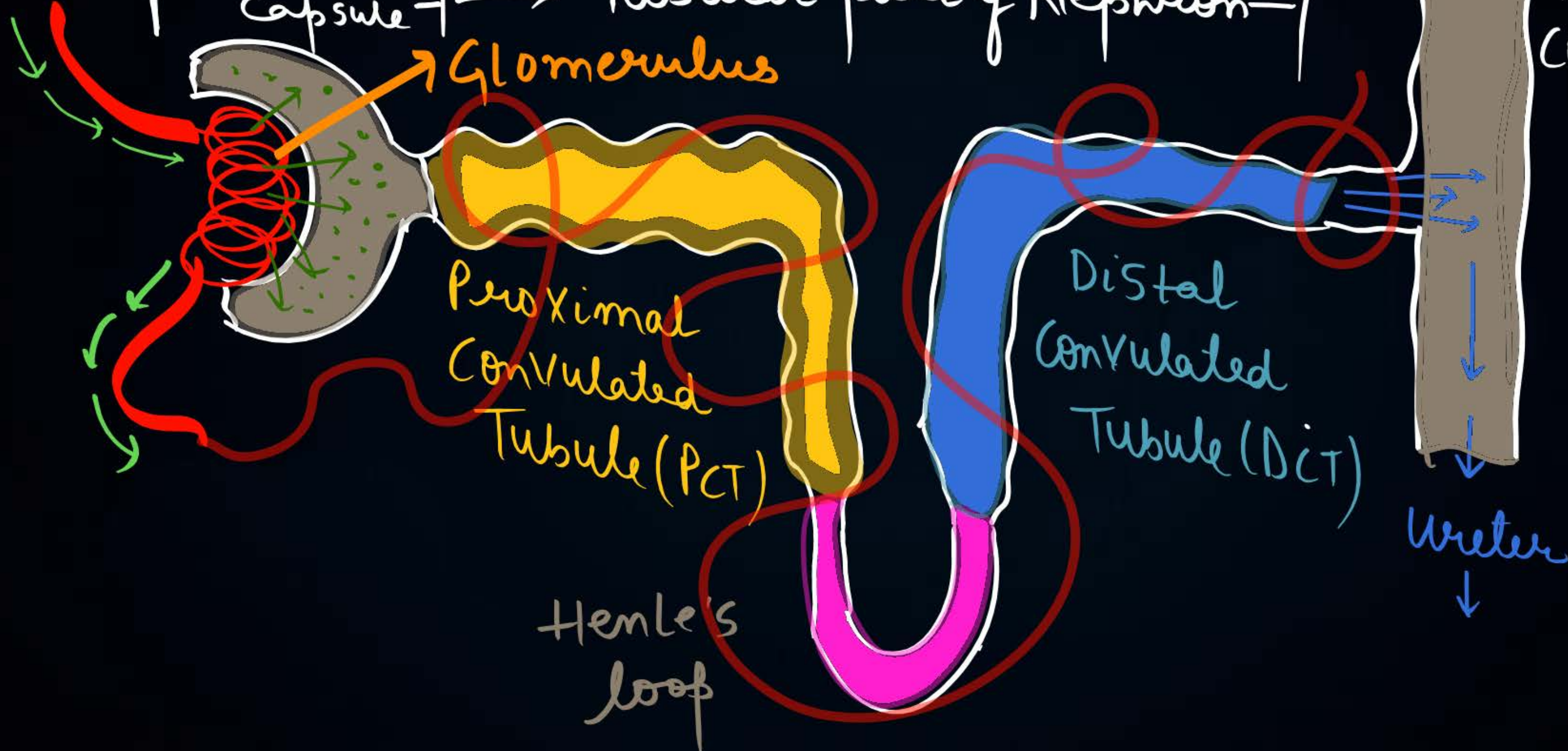
Glomerulus

Proximal Convulated Tubule (PCT)

Henle's loop

Distal Convulated Tubule (DCT)

Ureter





# Parts of Nephron

Tubule



① Bowman's Capsule

② Tubular part of Nephron

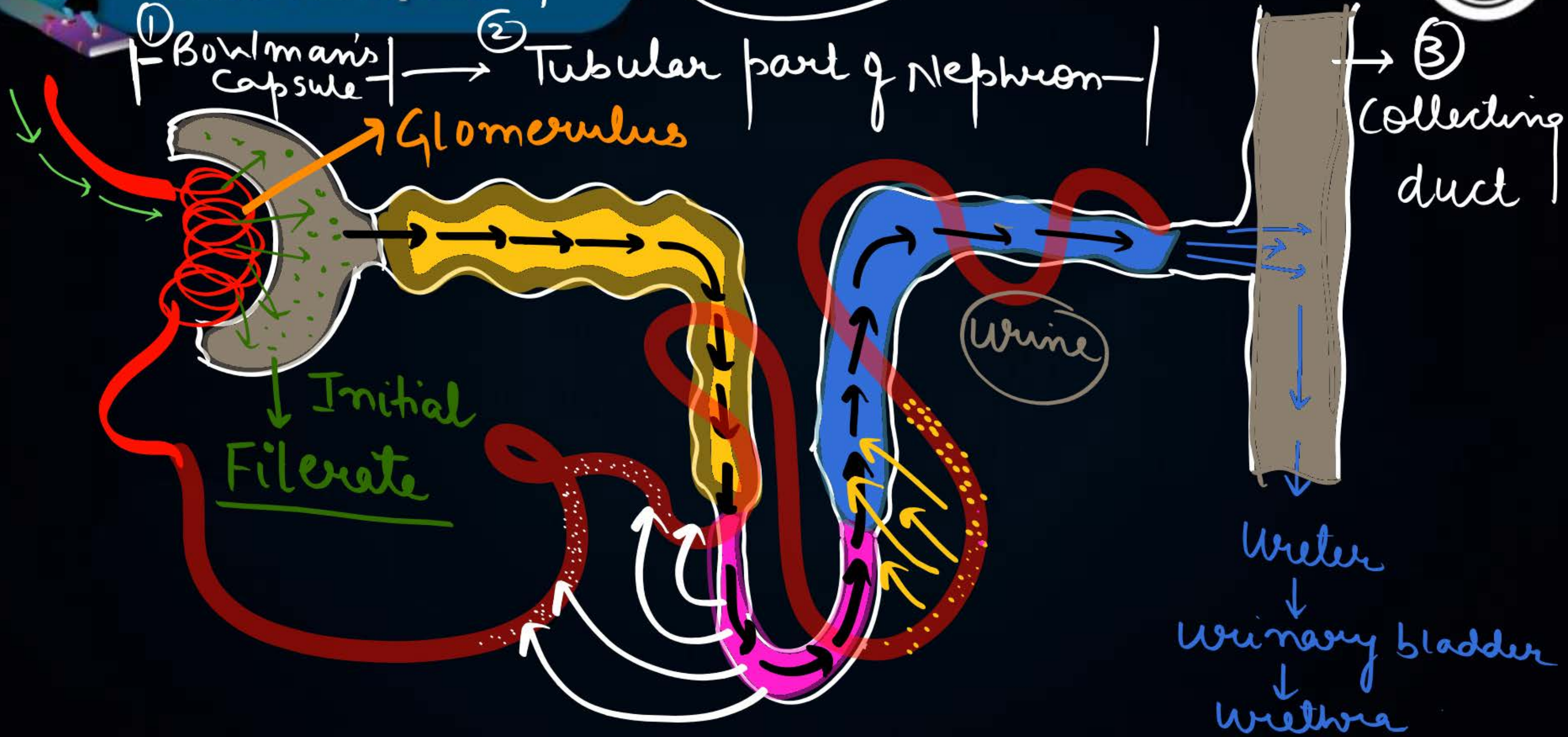
③ Collecting duct

Glomerulus

Initial Filtrate

Urine

Ureter  
↓  
Urinary bladder  
↓  
Urethra





# Steps of Formation of urine

①

## Glomerular filtration

✓ Nitrogenous wastes, glucose, water, amino acid, excessive salts from the blood are filtered and **initial filtrate** enters into Bowman Capsule of the nephron.

②

## Selective Reabsorption

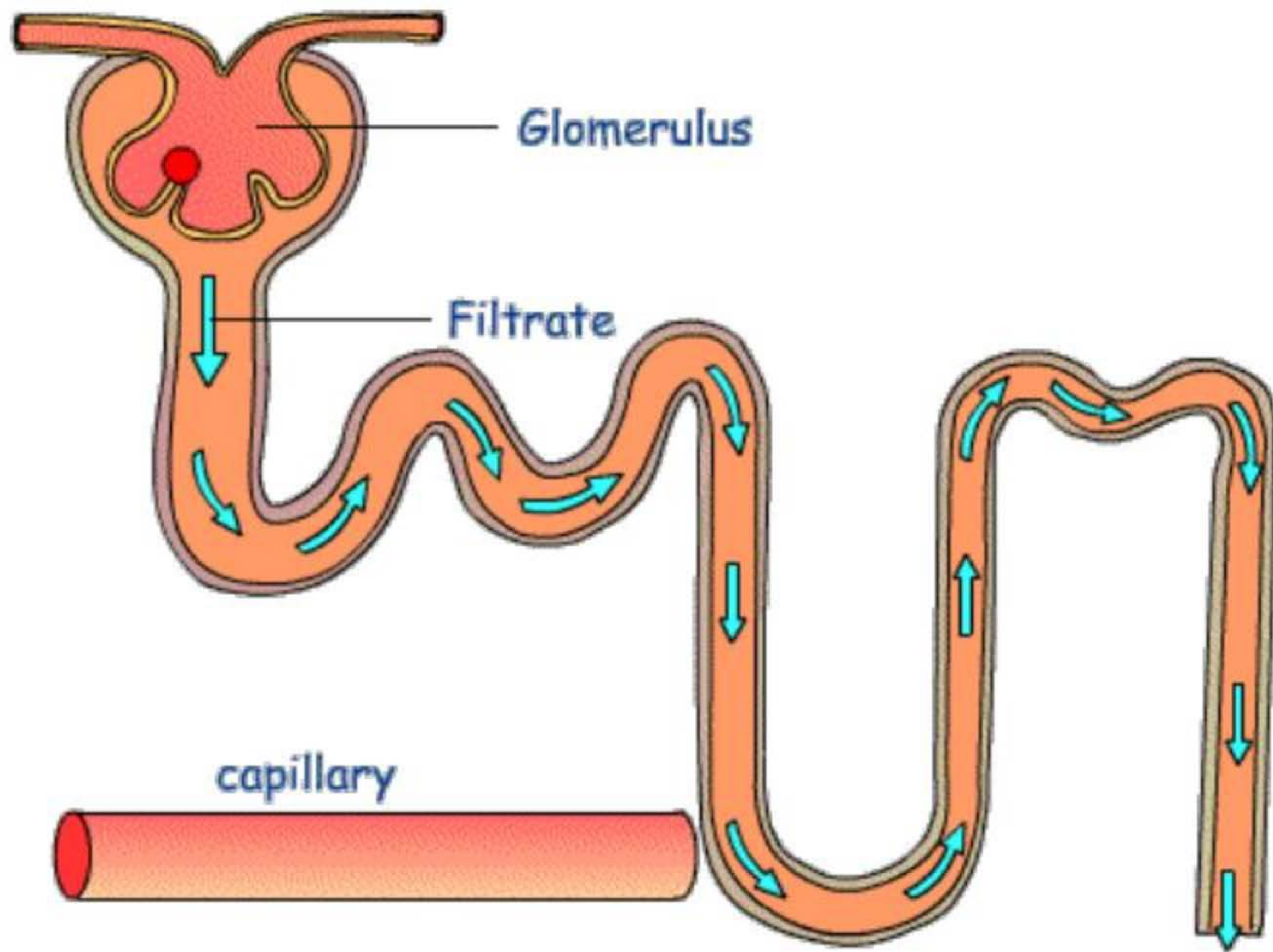
Useful substances like **glucose, amino acids, salts** and a major amount of **water** from the filtrate are reabsorbed back by capillaries surrounding the nephron.

③

## Tubular Secretion

✓ **Urea, extra water and salts** are secreted into the tubule which open up into the collecting duct & then into the ureter.





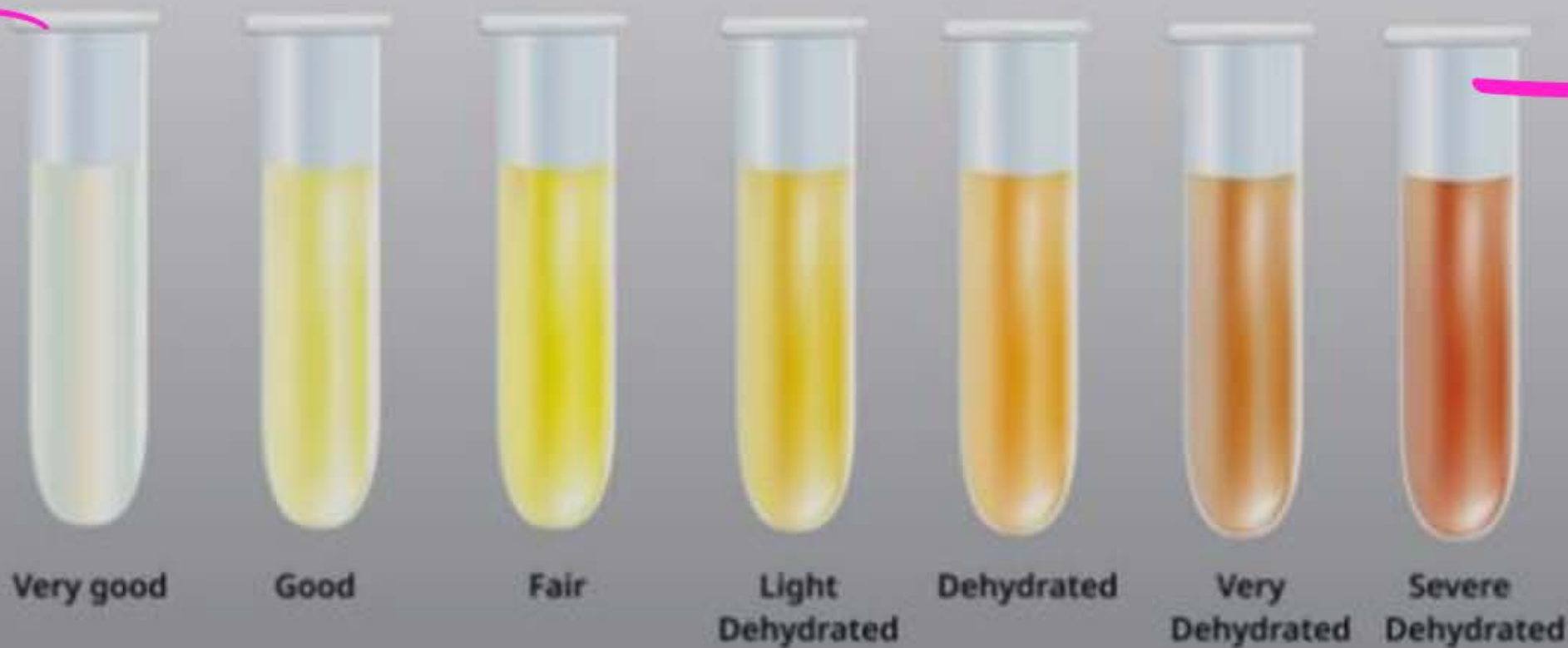
## NOTE:



The amount of water reabsorbed depends on how much excess water and Dissolved salts are in the body, and on how much dissolved waste there is to be excreted.



## URINE COLOR



light  
Coloured  
urine  
(enough  
water  
in your  
body)

Dark  
Coloured  
urine  
(Less  
water  
in our  
body)

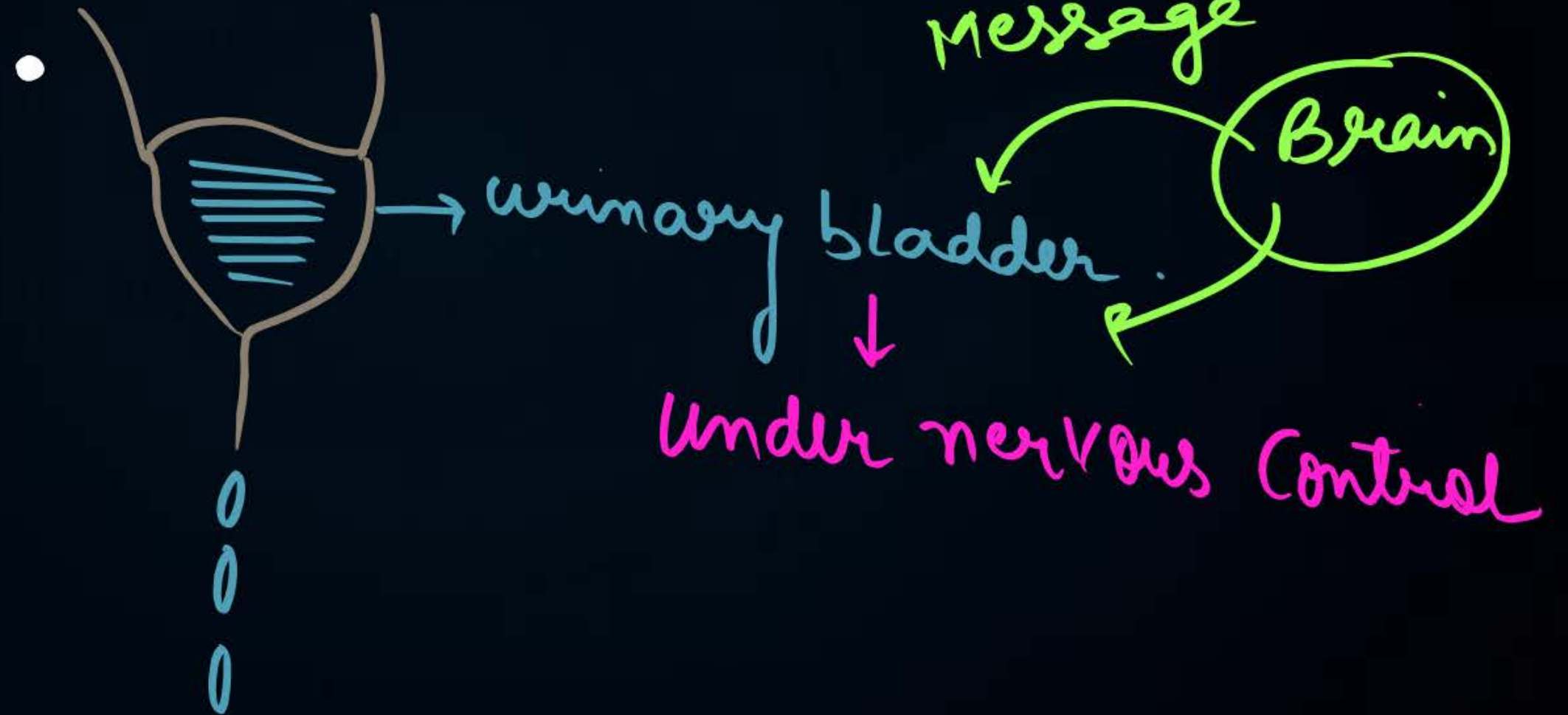
"Samosa Singh"



## Micturition

Release out

- Micturition or urination is the process of expelling urine out of the body





Which of the following is reabsorbed during excretion ?

- ☒ A Glucose ✓
- ☒ B Water ✓
- ☒ C Amino acids ✓
- ☒ D All of these ✓

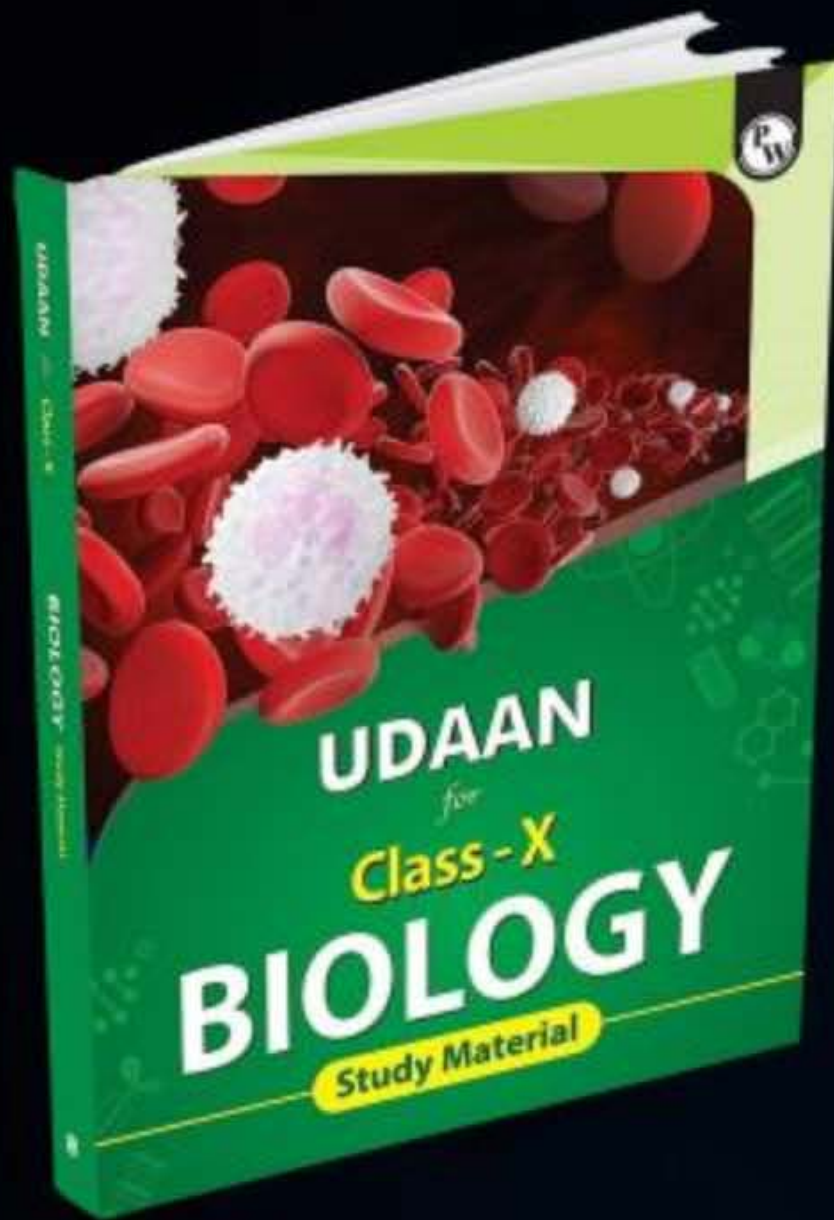
Which part of the nephron in human kidney, serves the function of reabsorption of certain substances?

- ☐ A Glomerulus
- ☐ B Bowman's capsule
- ☒ C Tubules ✓✓
- ☐ D Collecting duct



\_\_\_\_\_ is known as filtration unit of kidney

- A Urethra ✗
- B Ureter ✗
- C Nephron ✓✓
- D Urinary bladder ✗



# Homework



FROM PW MODULE  
( Udaan - CLASS 10 )

PAGE : 53 - Q-11 , Q-12





## Question of the Day



{ NCERT Questions }

→ Intext Q's

→ Back Exercise



## Joke/Meme of the Day



Foreigners : I am having serious kidney failure issues



*Samridhi Ma'am*





THANK  
YOU

