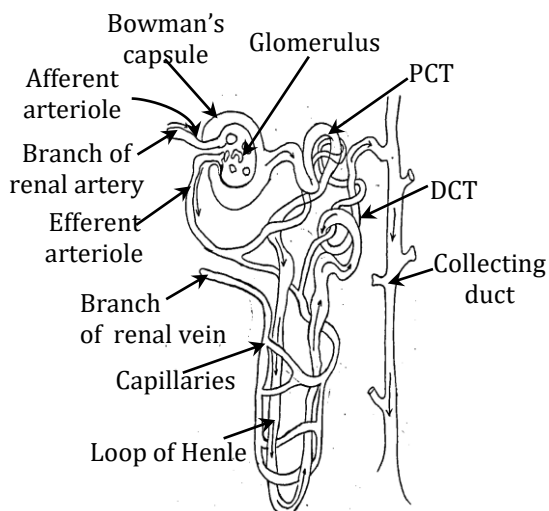


NCERT QUESTIONS WITH SOLUTIONS

1. Describe the structure and functioning of nephron.

Ans.



Structure of a Nephron

Structure of Nephron: Nephron is the structural and functional unit of kidney.

- (i) It consists of a long-coiled tubule divided into proximal convoluted tubule, loop of Henle and distal convoluted tubule. The distal convoluted tubule opens into the collecting duct.
- (ii) At the proximal end of the nephron lies a double-walled cup-shaped structure called Bowman's capsule.
- (iii) The Bowman's capsule contains a bundle of blood-capillaries which is called glomerulus.
- (iv) In the glomerulus, the blood that comes in through afferent arteriole is drained out after filtration through efferent arteriole.

Function of nephron is formation of urine which takes place in three stages.

- (i) **Filtration:** Filtration of blood takes place in Bowman's capsule from the capillaries of glomerulus. This takes place under high pressure. The filtrate passes into the tubular part of the nephron. This filtrate contains glucose, amino acids, urea, uric acid, salts and major amount of water.
 - (ii) **Reabsorption:** As the filtrate flows along the tubule useful substances such as glucose, amino acids, salts and water are selectively reabsorbed by renal tubule.
 - (iii) **Tubular secretion:** Certain substances which are harmful and not needed by the body like ammonia, potassium, creatinine and hydrogen ions are secreted from the capillary blood into the lumen of distal tubule. This is called tubular secretion.
- The fluid entering the collecting tubule is called urine. It flows through the ureters into urinary bladder where it is stored and discharged from time to time through urethra.

2. What are the methods used by plants to get rid of excretory products?

Ans. The methods used by plants to get rid of excretory products are -

- (i) The oxygen which is produced during the process of photosynthesis gets removed through stomata.
- (ii) The carbon dioxide which is produced during the process of respiration also gets removed through stomata.
- (iii) The excess of water gets removed through transpiration.
- (iv) Some other wastes get removed along with dead cells when plant lose some parts such as leaves.
- (v) Some waste products are stored in cellular vacuoles.
- (vi) Some waste products are stored as resins and gums, especially in old xylem.

3. How is the amount of urine produced regulated?

Ans. Amount of urine is regulated by volume of blood and amount of antidiuretic hormone (ADH). ADH is a hormone released by pituitary gland. Volume of blood is determined by presence or absence of extra water in the body. More blood volume will increase pressure in the glomerulus. It increases the amount of glomerular or nephric filtrate. ADH is not secreted. Dilute urine is allowed to pass through the kidneys. The amount of urine is higher than the normal.

In case the body has no extra water or is deficient of water, lesser glomerular filtrate will be produced. ADH is secreted. It helps in reabsorbing a good amount of water from urine. Therefore, only concentrated urine is passed out. Amount of urine is less than the normal.

4. The kidneys in human beings are a part of the system for -

- (a) Nutrition
- (b) Respiration
- (c) Excretion
- (d) Transportation

Ans. (c) Excretion

5. Compare the functioning of alveoli in the lungs and nephrons in the kidneys with respect to their structure and functioning.

Ans.

	Alveoli	Nephron
(1)	It is structural and functional unit of respiratory system.	It is structural and functional unit of excretory system.
(2)	Function of alveoli is exchange of gases.	Functions of nephron are filtration, reabsorption and tubular secretion.
(3)	It is a balloon like structure.	It is a tubular structure.