CBSE TEST PAPER-03

CLASS - XI BIOLOGY

(Excretory Products and their elimination)

General Instruction:

- All questions are compulsory.
- Question No. 1 to 3 carry one marks each. Question No. 4 to 6 carry two marks each. Question No. 7 and 8 carry three marks each. Question No. 9 carry five marks.

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1. What happens is glomerulonephritis?

2. Name the excretory organ of cockroach.

3. Name the hormone which controls the concentration of sodium in the body.

4. Describe the blood vessels called vasa rectae found in relation to uriniferous tubules. What is their function?

5. What is chief nitrogenaus waste product in birds? Give two advantages of this mode of excretion.

6. Terrestrial animals are generally either ureotelic ar uric telic, Not ammonotelic. Why?

7. Suppose the kidneys of a person are damaged, can you predict what is going to happen to him?

8. How does liver both as a digestive as well as an excretory organ?

9. Describe the renal excretory system of man.

CBSE TEST PAPER-3

CLASS - XI BIOLOGY

(Excretory Products and their elimination)

[ANSWERS]

Ans 01. Inflammation of glomeruli of kidney.

Ans 02. Malphigian tubules.

Ans 03. Aldosterene is a hormone which controls concentration of sodium in the body.

Ans 04. Vasa recta are u–shaped, thin walled capillaries that arise from the efferent arteriole; they run parallel to Henle's loop.
They retain the reabsorbed ions in the medullary tissue fluid and maintain its high osmolarity.

Ans 05. Chief mitrogenous waste product of bird is uric acid.
It is advantageous them as –

(i) Uric acid requires very little or no water for its elimination.

(ii) Uric acid is far less toxic and can be eliminated slowly.

Ans 06. Ammonia is highly toxic and it has to eliminate as rapidly as it is formed.
- Land animals have an integument that is impervious to gas exchange.
- It requires a large volume of water needed for elimination
- They do not access to such a large volume of water needed for elimination of ammonia.
- So they are ureotelic or uricotelic.

Ans 07. The kidneys are considered as master chemists of the body. If they are damaged, it would disturb the normal functioning of the life processes. Due to the effect of toxins produced by some bacteria the fillers of tiny uriniferous tubules are damaged. They become perforated with larger holes and allow blood cells, proteins also to pass through them along with the urea and water during filtration of blood in formation of urine. Thus urine contains the blood proteins etc. It is a serious disease.

Ans 08. Liver serve as digestive organ – It secretes bile; bile helps in the digestion of fats.

Liver serve as excretory organ - It secretes following waste products in the bile; bilirubin, biliverdin (products of degradation of haemoglobin), cholesterol, inactivated steroid hormones, drugs, etc in the bile; these wastes are eliminated along with the digestive wastes or faecal matter.

Ans 09. The urinary system consist of following organs.
(a) A pair of kidneys

(b) A pair of ureters

(c) Urinary bladder

(d) Urethra kidney

– The kidneys are located in the abdomen, one on each side of the vertebral column just below the diaphragm, which remains protected by last two pairs of ribs.. The left kidney is usually placed higher than right one. Each kidney is 10cm in length 5 cm in breadth and 4cm in thickness. Each kidney is somewhat bean shaped with concavity along the inner border. Blood vessels, nerves, lymph ducts and ureters enter the kidney at this point. In the gross anatomy of kidney, two regions can be clearly marked out. There are outer cortex and inner medulla.

Internal structure of kidney – Each kidney composed of several tiny units called nephrons or uriniferous tubule, all similar in structure and function. Each nephron is made up of vascular component, the glomerulus and tubular component, and surrounded by a network of capillaries. The tubule is composed of single layer of epithelial cells which differ in structure and function in different parts of the tubule. The tubule originates as a blind sac, which is known as Bowman's capsule which is lined by a single layer of thin epithelial cells – Bowman's capsule is ultimately associated with vascular glomerulus which protrudes into Bowman's capsule and is completely covered by the linning of the capsule. The glomerulus is formed by afferent and efferent arteries. The afferent arterioles bring blood to the tubular and efferent arterioles takes blood away from the tubule. Due to this, the blood in the glomerulus is separated from the space within the capsule only by (a) a thin layer of a tissue composed of the single – celled capillary lining (b) a layer material called basement membrane and (c) the single celled lining of Bowman's capsule. This extremely thin barrier permits the filtration of the fluid from the capillaries into Bowman's capsule.

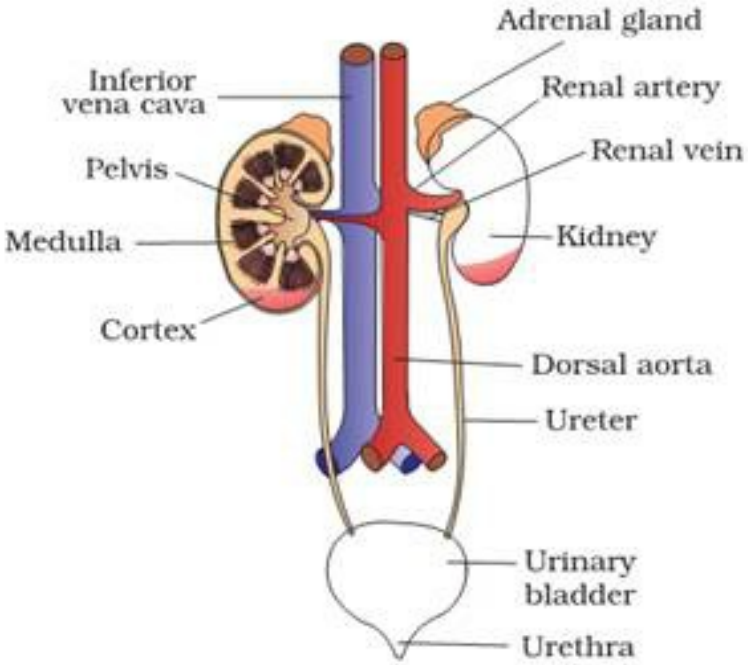

Figure 19.1 Human Urinary system

The glomerular capillaries combine together to form efferent arterioles which further divide into many capillaries distributed all over the surface of the tubule. These capillaries are termed as particular capillaries. These capillaries join together to form the venous channels which take blood away from the kidney. The tubule is divided into three pates – Proximal convoluted part in which Bowman's capsule opens. The next part is Henle's loop and last part is distal convoluted part which finally runs as a collecting duct.

Ureters – These are two tubes or about 30 cm long – one coming out from each kidney. They run downwards and open into urinary bladder.

Urinary bladder- It is a bag like structure where urine is stared. The bladder has three openings two of the ureters and one to urethra.

Urethra – the urethra is the passage through which urine is passed out.