YAKEEN NEET 2.0

2026

EXCRETORY PRODUCTS AND ITS ELIMINATION

ZOOLOGY | Lecture – 7

By- SAMAPTI MAM

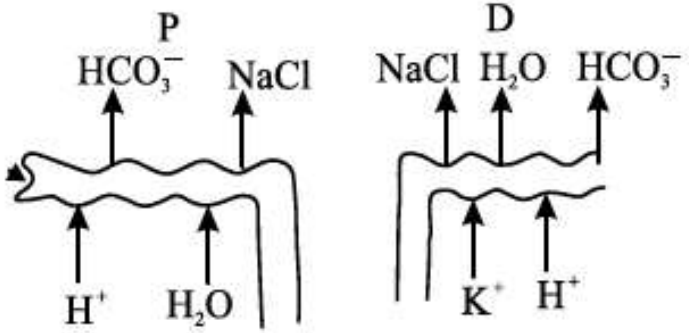
Topics to be covered

1. TAPASYA unsolved ppt
2.
3.
4.

MY TELEGRAM

. Which of the following diagrams is correct with regard to the proximal (P) and distal (D) tubule of the Nephron.

(1)



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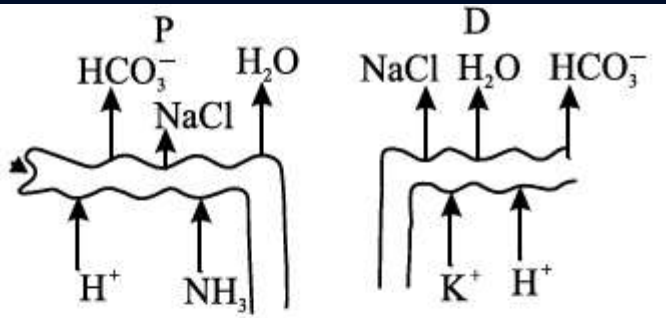

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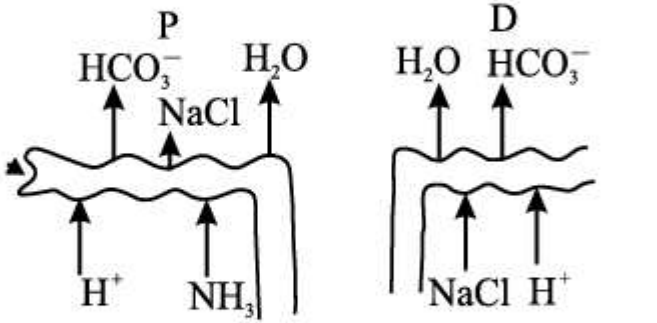

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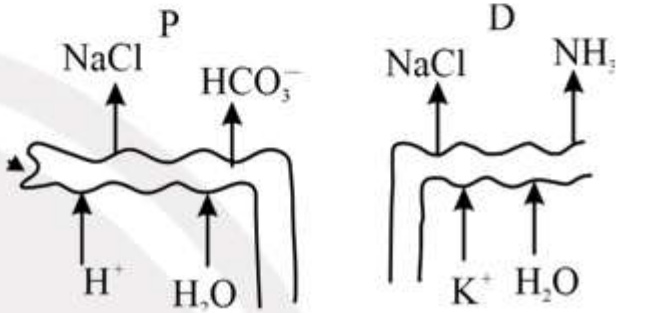


. Choose the **correct** statement given below regarding juxta medullary nephron.

(1) Loop of Henle of juxtamedullary nephron runs deep into medulla.

(2) Juxtamedullary nephrons outnumber the cortical nephtons.

(3) Juxtamedullary nephrons are located in the columns of Bertini.

(4) Renal corpuscle of juxtamedullary nephron lies in the outer portion of he renal medulla.

173. Given below are two statements:

Statements I: In the nephron the descending limb of loop of Henle is impermeable to water and permeable to electrolytes.

Statement II: The proximal convoluted tubule is lined by simple columnar brush border epithelium and increases the surface area for reabsorption.

In the light of the above statements, choose the correct answer fropm the options given below:

(1) Statement I is true but Statement II is false.

(2) Statement I is false but Statement II is true.

(3) Both Statement I and Statement II are true.

(4) Both Statement I and Statement II are false.

Which of the following statements are correct?

A. An excessive loss of body fluid from the body switches off osmoreceptors.

B. ADH facilitates water reabsorption to prevent diuresis.

C. ANF causes vasodilation.

D. ADH causes increase in blood pressure.

E. ADH is responsible for decrease in GFR.

Choose the **correct** answer from the options given below:

(1) A, B and E only

(2) C, D and E only

(3) A and B only

(4) B, C and D only

Given below are two statements: one is labelled as **Assertion A** and the other is labelled as **Reason R**.

Assertion A: Nephrons are of two types: Cortical & Juxta medullary, based on their relative position in cortex and medulla.

Reason R: Juxta medullary nephrons have short loop of Henle whereas, cortical nephrons have longer loop of Henle.

In the light of the above statements, choose the **correct** answer from the options given below:

(1) **A** is true but **R** is false.

(2) **A** is false but **R** is true.

(3) Both **A** and **R** are true and **R** is the correct explanation of **A**.

(4) Both **A** and **R** are true but **R** is NOT the correct explanation of **A**.

75. Presence of which of the following conditions in urine are indicative of Diabetes Mellitus ?

(1) Renal calculi and Hyperglycaemia

(2) Uremia and Ketonuria

(3) Uremia and Renal Calculi

(4) Ketonuria and Glycosuria

47. Which of the following would help in prevention of diuresis ?

(1) Decrease in secretion of renin by JG cells

(2) More water reabsorption due to undersecretion of ADH

(3) Reabsorption of Na^+ and water from renal tubules due to aldosterone

(4) Atrial natriuretic factor causes vasoconstriction

121. Which of the following factors is responsible for the formation of concentrated urine?

(1) Low levels of antidiuretic hormone.

(2) Maintaining hyperosmolarity towards inner medullary interstitium in the kidneys.

(3) Secretion of erythropoietin by juxtaglomerular complex.

(4) Hydrostatic pressure during glomerular filtration.

NEET(UG)–2018

151. Match the items given in Column I with those in Column II and select the ***correct*** option given below:

	Column I		*Column II*
a.	Glycosuria	i.	Accumulation of uric acid in joints
b.	Gout	ii.	Mass of crystallised salts within the kidney
c.	Renal calculi	iii.	Inflammation in glomeruli
d.	Glomerular nephritis	iv.	Presence of glucose in urine

	a	**b**	**c**	**d**
(1)	iii	ii	iv	i
(2)	i	ii	iii	iv
(3)	ii	iii	i	iv
(4)	iv	i	ii	iii

152. Match the items given in Column I with those Column II and select the ***correct*** option given below:

Column I (Function)	*Column II* (Part of Excretory System)
a. Ultrafiltration	i. Henle's loop
b. Concentration of urine	ii. Ureter
c. Transport of urine	iii. Urinary bladder
d. Storage of urine	iv. Malpighian corpuscle
	v. Proximal convoluted tubule

	a	**b**	**c**	**d**
(1)	iv	v	ii	iii
(2)	iv	i	ii	iii
(3)	v	iv	i	ii
(4)	v	iv	i	iii

QUESTION

The process of excretion involves

1. removal of useful substances from the body.
2. removal of metabolic wastes from the body.
3. removal of essential minerals from the body.
4. None of these

QUESTION

The cortex extends in between the medullary pyramids as renal columns are called;

1. Columns of Bertini.
2. glomerulus.
3. renal corpuscle.
4. renal pelvis.

QUESTION

Which segment of nephron allows the passage of a small amount of urea into the medullary interstitium?

1. Distal convoluted tubule
2. Loop of Henle
3. Collecting duct
4. Proximal convoluted tubule

QUESTION

The liver secretes cholesterol, degraded steroid hormones, vitamins, and drugs. Most of these substances ultimately pass out along with;

1. serum.
2. urine.
3. sweat.
4. digestive wastes.

QUESTION

JGA plays a complex regulatory role when;

1. there is a fall in glomerular blood pressure.
2. ADH secretion is at its maximum.
3. there is an increase in glomerular blood flow.
4. All of these

If a substance is filtered from the glomerulus and then completely reabsorbed in the proximal convoluted tubule (PCT), where would its concentration be effectively zero if all subsequent parts of the nephron are functioning normally?

(A) In the fluid within the loop of Henle.

(B) In the fluid within the glomerulus.

(C) In the blood within the efferent arteriole.

(D) In the filtrate entering the Bowman's capsule

If the ascending limb of Henle's loop were to become permeable to water, what would be the immediate consequence on the urine concentration?

(A) The urine would become more concentrated.

(B) The urine would become more dilute.

(C) There would be no significant change in urine concentration.

(D) The counter current mechanism would become more efficient.

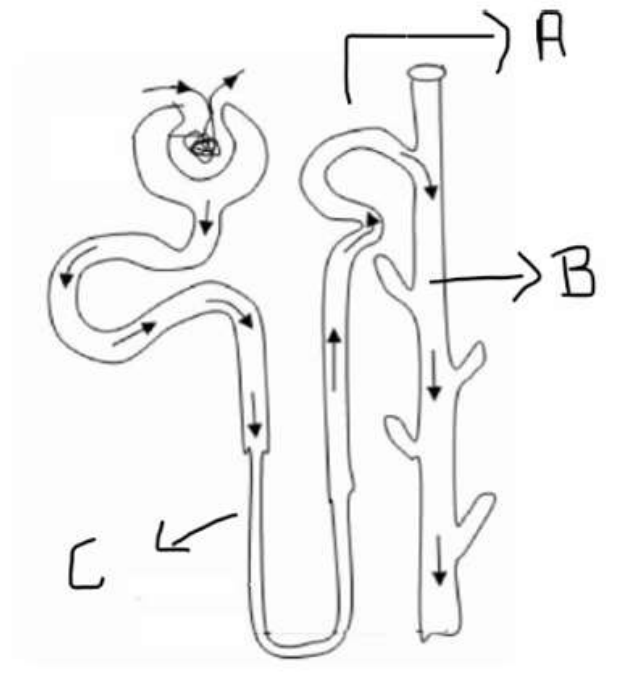
If a substance is found to be actively secreted only in the region lined by cuboidal epithelial cells with very few microvilli and mitochondria, and this region is also permeable to water under hormonal influence, which region is it?

(A) Proximal convoluted tubule

(B) Ascending limb of Henle's loop

(C) Distal convoluted tubule

(D) Bowman's capsule



A patient is diagnosed with a condition that primarily affects the reabsorption of water in the nephron, leading to excessive urination (polyuria) and dehydration. Based on the provided diagram, which part of the nephron, if dysfunctional, would most directly and significantly contribute to these symptoms?

(A) A: Distal convoluted tubule

(B) B: Collecting Duct

(C) C: Thin segment of descending limb

(D) Both A and B

Evaluate the following assertions concerning nitrogenous waste excretion:

1. Ammonotelism is common in bony fishes and aquatic insects due to the ready availability of water for dilution and excretion of ammonia via diffusion.
2. Ureotelism involves the conversion of ammonia into urea in the liver of animals like mammals and terrestrial amphibians to conserve water.
3. Uricotelism, observed in reptiles, birds, land snails, and insects, is an adaptation for minimal water loss, where uric acid is excreted.
4. Some amount of urea may be retained in the kidney matrix of some ureotelic animals to maintain desired osmolarity.

Select the option that accurately reflects the validity of these statements:

(A) Only I and III are true.

(B) I, II, and III are true.

(C) I, II, III, and IV are true.

(D) Only II and IV are true.

A person is diagnosed with a condition where the efferent arteriole of the glomerulus is significantly constricted, while the afferent arteriole remains normal. Analyze the potential consequences:

I. Glomerular Filtration Rate (GFR) would likely increase.

II. Hydrostatic pressure within the glomerulus would increase.

III. Peritubular capillary blood flow would decrease.

IV. Formation of concentrated urine would be inhibited due to reduced medullary osmotic gradient.

Which of the above statements are likely to be **correct**?

(A) I, II, and III only

(B) I, II, and IV only

(C) II, III, and IV only

(D) I, II, III, and IV

A patient presents with severe dehydration and low blood pressure. Which of the following compensatory mechanisms would be *least* effective in restoring normal blood volume and pressure ?

(A) Increased ADH secretion

(B) Increased renin release

(C) Increased Atrial Natriuretic Factor (ANF) release

(D) Increased aldosterone secretion

An individual's urine test shows the presence of glucose and amino acids, despite normal blood glucose levels. This finding most strongly suggests a defect in which part of the nephron?

(A) Glomerulus

(B) Proximal Convoluted Tubule (PCT)

(C) Loop of Henle

(D) Distal Convoluted Tubule (DCT)

Which of the following changes are observed in a person suffering from chronic kidney failure?

(A) decreased urea and creatinine levels in blood

(B) Increased erythropoietin production

(C) Water retention and edema

(D) Metabolic alkalosis

Which of the following factors would result in an increase in the rate of glomerular filtration in the kidneys?

(A) A rise in plasma protein concentration.

(B) An increase in the fluid pressure in Bowman's space.

(C) An increase in the glomerular capillary blood pressure.

(D) A drop in glomerular capillary blood pressure.

Given below are two statements: one is labelled as Assertion A and the other is labelled as Reason R:

Assertion A: Micturition in humans is controlled by both parasympathetic and sympathetic nervous system.

Reason R: Parasympathetic nervous system promote bladder emptying by stimulating contraction of urinary bladder's smooth muscles and sympathetic nervous system promote filling of bladder by relaxation of smooth muscles of bladder wall.

In the light of the above statements, choose the **correct** answer from the options given below:

(A) A is true but R is false.

(B) A is false but R is true.

(C) Both A and R are true and R is the correct explanation of A.

(D) Both A and R are true but R is NOT the correct explanation of A.

QUESTION

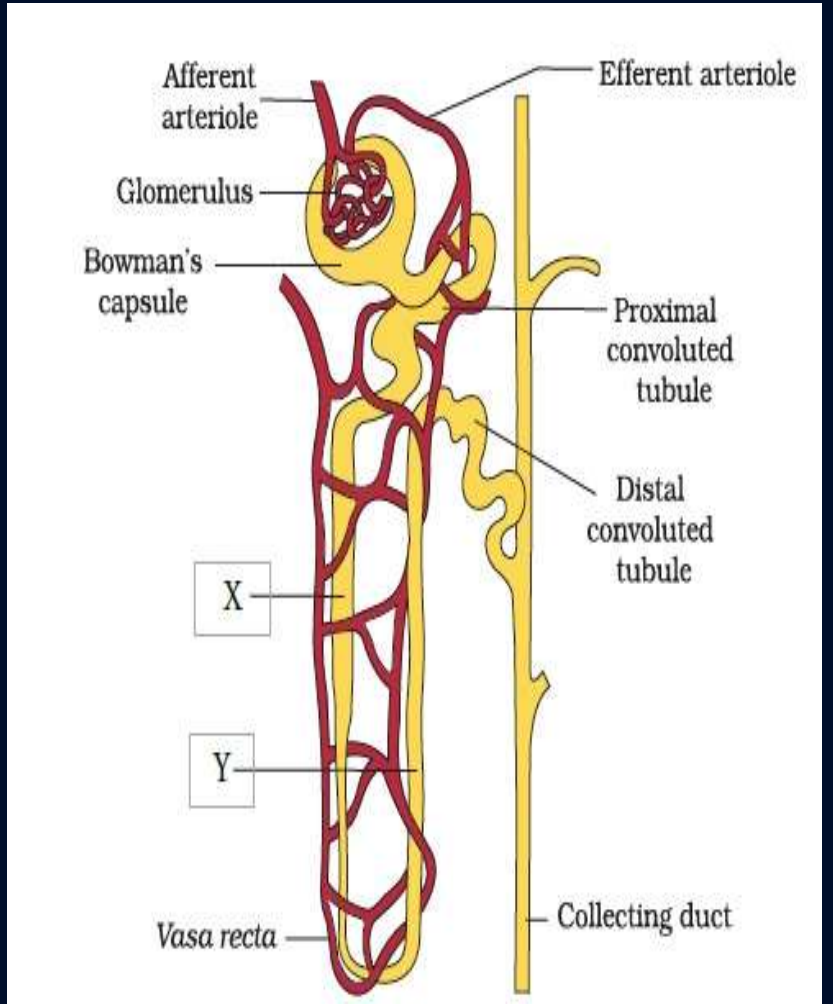
Choose the incorrect pair.

1. Renal calculi - insoluble mass of crystallised salts
2. Kidney transplantation - correction of acute renal failures
3. Atrial natriuretic factor- constriction of blood vessels
4. Glomerular filtration rate- amount of the filtrate formed by the kidneys per minute

QUESTION

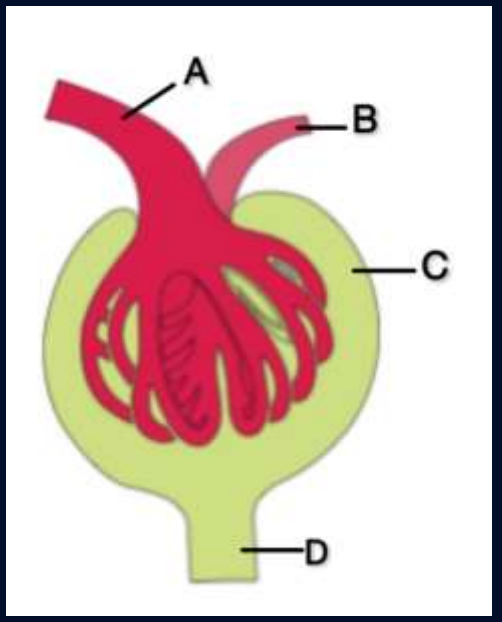
Identify the given diagram and choose the option with its correct characteristic.

1. X- Descending limb of loop of Henle; almost impermeable to electrolytes
2. Y- Ascending limb of loop of Henle; permeable to water
3. X- Ascending limb of loop of Henle; impermeable to electrolyte
4. Y- Descending limb of loop of Henle; impermeable to water



QUESTION

Identify A-D in the diagram of Malpighian body (renal corpuscle) and choose the correct option for A, B, C and D.



1. A-Efferent arteriole, B-Afferent arteriole, C-Bowman's capsule, D-Distal convoluted tubule

2. A-Afferent arteriole, B-Efferent arteriole, C-Bowman's capsule, D-Proximal convoluted tubule

3. A-Efferent arteriole, B-Afferent arteriole, C-Bowman's capsule, D-Distal convoluted tubule

4. A-Afferent arteriole, B-Efferent arteriole, C-Bowman's capsule, D-Distal convoluted tubule

QUESTION

Read the following statements (I-IV).

I. Kidneys are reddish brown, bean shaped structures.

II. Kidneys are situated between the levels of first thoracic and third lumbar vertebra.

III. Each kidney of an adult human measures 5-7 cm in length, 10-12 cm in width, 2-3 cm in thickness.

IV. Each kidney of an adult human has average weight of 120- 170 g.

Which of the above statements are incorrect?

1. I, II and III only
2. I and IV only
3. II and III only
4. I, II, III and IV

QUESTION

Read the following statements w.r.t micturition.

(I) The signal for micturition is initiated by the stretching of the urinary bladder as it gets filled with urine.

(II) The stretch receptors on the walls of the bladder send signals to the PNS.

(III) The contraction of the urethral sphincter causes the release of urine alone.

(IV) The neural mechanisms causing micturition is called the micturition reflex.

Choose the option with the correct statements.

1. II and III
2. I and IV
3. I and III
4. III and IV

QUESTION

How many of the following statements are incorrect?

(a) The proximity between the Henle's loop and *vasa recta*, as well as the counter in them help in maintaining an increasing osmolarity towards the inner medullary interstitium.

(b) The medullary interstitium osmolarity gradient is mainly caused by NaCl and urea.

(c) NaCl is returned to the interstitium by the descending portion of *vasa recta*.

(d) Small amounts of urea enter the thick segment of the ascending limb of Henle's loop from interstitium.

1. One
2. Two
3. Three
4. Four

QUESTION

Which of the following statements are true or false?

I. Angiotensin II activates the adrenal medulla to release aldosterone.

II. Aldosterone helps to decrease blood pressure and GFR.

III. ADH facilitates water reabsorption from distal convoluted tubule.

IV. Fall in body fluid volume can switch off the osmoreceptors and suppress the ADH.

1. I and IV are true, but II and III are false.

2. II and IV are true, but I and III are false.

3. I and III are true, but II and IV are false.

4. I, II and IV are false, but only III is true.

QUESTION

Match List-I with List-II to find out the correct option.

1. a- (II), b- (IV), c- (III), d- (I)
2. a- (II), b- (III), c- (IV), d- (I)
3. a- (IV), b- (I), c- (II), d- (III)
4. a- (IV), b- (I), c- (III), d- (II)

	List-I		List-II
(a)	Lungs	(I)	Biliverdin
(b)	Liver	(II)	Waxes
(c)	Sweat	(III)	Lactic acid
(d)	Sebum	(IV)	CO_2

QUESTION

Statement-I: Renin converts angiotensinogen to angiotensin I.
Statement-II: Angiotensin II is a vasoconstrictor.

1. Statement I and Statement II both are correct.
2. Statement I is correct, but Statement II is incorrect.
3. Statement I is incorrect, but Statement II is correct.
4. Statement I and Statement II both are incorrect.

QUESTION

Statement-I: Malfunctioning of kidneys can lead to uremia.
Statement-II: In patients of uremia, urea can be removed by a process called hemodialysis.

1. Statement I and Statement II both are correct.
2. Statement I is correct, but Statement II is incorrect.
3. Statement I is incorrect, but Statement II is correct.
4. Statement I and Statement II both are incorrect.

QUESTION

Assertion (A): Some amount of urea may be retained in the kidney matrix of some animals.
Reason (R): It helps to maintain a desired osmolarity.

1. Both Assertion (A) and Reason (R) are true, and Reason (R) is a correct explanation of Assertion (A).

2. Both Assertion (A) and Reason (R) are true, but Reason (R) is not a correct explanation of Assertion (A).

3. Assertion (A) is true, but Reason (R) is false.

4. Assertion (A) is false, but Reason (R) is true.

QUESTION

Assertion (A): Liver also assists in excretion.

Reason (R): It eliminates certain substances like sterols, hydrocarbons and waxes through sebum.

1. Both Assertion (A) and Reason (R) are true, and Reason (R) is a correct explanation of Assertion (A).

2. Both Assertion (A) and Reason (R) are true, but Reason (R) is not a correct explanation of Assertion (A).

3. Assertion (A) is true, but Reason (R) is false.

4. Assertion (A) is false, but Reason (R) is true.

QUESTION

Assertion (A): Angiotensin II decreases the glomerular blood pressure and thereby GFR.
Reason (R): Aldosterone causes reabsorption of Na+ and water from the distal parts of the tubule.

1. Both Assertion (A) and Reason (R) are true, and Reason (R) is a correct explanation of Assertio (A).

2. Both Assertion (A) and Reason (R) are true, but Reason (R) is not a correct explanation o Assertion (A).

3. Assertion (A) is true, but Reason (R) is false.

4. Assertion (A) is false, but Reason (R) is true.

QUESTION

Assertion (A): Atrial natriuretic factor mechanism acts as a check on the renin-angiotensin mechanism.

Reason (R): A decrease in blood flow to the atria of the heart can cause the release of ANF.

1. Both Assertion (A) and Reason (R) are true, and Reason (R) is a correct explanation of Assertion (A).
2. Both Assertion (A) and Reason (R) are true, but Reason (R) is not a correct explanation of Assertion (A).
3. Assertion (A) is true, but Reason (R) is false.
4. Assertion (A) is false, but Reason (R) is true.

Question

The conversion of the most toxic nitrogenous waste into a less toxic form in mammals is a vital metabolic process. Select the option that correctly identifies the site of this conversion and the immediate destination of the product before its final elimination.

1. Kidney; directly excreted into the collecting duct.
2. Liver; released into the blood for transport to the kidneys.
3. Body cells; diffuses into tissue fluid and then into blood.
4. Spleen; transported to the liver for further processing.

Question

In cases of acute renal failure, the most definitive long-term corrective treatment mentioned, which requires careful consideration of the host's immune system, is:

1. Hemodialysis
2. Kidney transplantation
3. A low-protein diet
4. Diuretic therapy

Question

The presence of glycosuria and ketonuria in a patient's urine analysis is a strong clinical indicator of a metabolic disorder affecting:

1. Protein metabolism
2. Fat and carbohydrate metabolism
3. Bilirubin degradation
4. Uric acid synthesis

Question

The unique vascular arrangement in the kidney, where an arteriole drains a capillary bed and then forms another capillary network, is crucial for renal function. This arrangement is correctly depicted as:

1. Afferent arteriole → Peritubular capillaries → Efferent arteriole
2. Renal artery → Glomerulus → Efferent arteriole → Vasa recta
3. Afferent arteriole → Glomerulus → Efferent arteriole → Peritubular capillaries
4. Glomerulus → Afferent arteriole → Efferent arteriole → Renal vein

Question

An animal adapted for survival in an extremely arid environment would be expected to have a higher proportion of juxtamedullary nephrons compared to cortical nephrons. This anatomical feature is advantageous primarily because juxtamedullary nephrons possess:

1. A more developed peritubular capillary network for enhanced secretion.
2. A larger glomerulus for a higher filtration rate.
3. A very long loop of Henle and an associated vasa recta.
4. A shorter loop of Henle that minimizes the metabolic cost of reabsorption.

Question

The kidneys process approximately 1100-1200 ml of blood per minute. However, the glomerular filtration rate (GFR) is only about 125 ml/minute. This significant difference is primarily because:

1. The filtration membrane is impermeable to most blood components.
2. Only the plasma portion of the blood is subjected to filtration, and not all of it passes into the capsule.
3. The efferent arteriole has a much larger diameter than the afferent arteriole, reducing pressure.
4. Glomerular filtration is an active process that is rate-limited by ATP availability.

Question

Given that a healthy person produces 180 litres of glomerular filtrate per day but only excretes 1.5 litres of urine, this fact is a direct quantitative evidence of the immense efficiency of:

1. Glomerular filtration
2. Tubular reabsorption
3. Tubular secretion
4. Renin-angiotensin mechanism

Question

The term "conditional reabsorption" in the DCT implies that the reabsorption of Na+ and water in this segment is:

1. Constant and unregulated
2. Dependent on the body's physiological state
3. Exclusively a passive process
4. Primarily for pH maintenance

Question

In the counter-current exchange system, NaCl transported out of the ascending limb of Henle’s loop is picked up by the:

1. Descending limb of Henle's loop
2. Descending limb of vasa recta
3. Ascending limb of vasa recta
4. Collecting duct

Question

Suppression of ADH release from the neurohypophysis is a direct physiological response to:

1. Activation of JG cells
2. A decrease in blood pressure
3. Activation of osmoreceptors by fluid loss
4. An increase in body fluid volume

Question

Consider the following events in the regulation of kidney function:

I. Release of Renin from JG cells.

II. Vasoconstriction, leading to an increase in glomerular blood pressure.

III. Conversion of angiotensinogen in blood to angiotensin I.

IV. Secretion of Aldosterone from the adrenal cortex.

V. Reabsorption of Na^+ from distal parts of the tubule.

What is the correct sequence of events following a fall in GFR?

1. I → III → II → IV → V
2. III → I → II → V → IV
3. I → II → III → IV → V
4. I → III → IV → II → V

Question

Statement I: The glomerular capillary blood pressure causes filtration of blood through 3 layers.

Statement II: The JGA, a special sensitive region, is formed by cellular modifications in the DCT and the efferent arteriole at their location of contact.

1. Both Statement I and Statement II are correct.
2. Statement I is correct but Statement II is incorrect.
3. Statement I is incorrect but Statement II is correct.
4. Both Statement I and Statement II are incorrect.

Question

Assertion (A): Terrestrial adaptation necessitated the production of lesser toxic nitrogenous wastes like urea and uric acid.

Reason (R): This adaptation was primarily for conservation of energy, as producing urea and uric acid is metabolically cheaper than ammonia.

1. Both A and R are true and R is the correct explanation of A.
2. Both A and R are true but R is not the correct explanation of A.
3. A is true but R is false.
4. Both A and R are false.

Question

Consider the location of the human kidneys: "situated between the levels of last thoracic and third lumbar vertebra close to the dorsal inner wall of the abdominal cavity." Which of the following is an accurate inference from this statement?

1. The kidneys are retroperitoneal organs.
2. The right kidney is situated slightly higher than the left.
3. The kidneys are protected anteriorly by the floating ribs.
4. The adrenal glands are located on the ventral surface of the kidneys.

Question

Assertion (A): Human kidneys can produce urine nearly four times concentrated than the initial filtrate formed.

Reason (R): The counter-current mechanism facilitates the creation of a medullary interstitial gradient from about 300 $mOsmolL^{-1}$ in the cortex to 1200 $mOsmolL^{-1}$ in the inner medulla.

1. Both A and R are true and R is the correct explanation of A.
2. Both A and R are true but R is not the correct explanation of A.
3. A is true but R is false.
4. Both A and R are false.

Question

An adult human excretes, on an average, 25-30 gm of urea per day. If a person's urine analysis shows an excretion of only 10 gm of urea per day despite normal hydration and diet, it could be indicative of:

1. Diabetes mellitus
2. Uremia
3. Renal calculi
4. Glomerulonephritis

Question

A person drinks several litres of water. Which of the following physiological responses would you NOT expect to occur?

1. Suppression of ADH release from the neurohypophysis.
2. Decreased water reabsorption from the DCT and collecting ducts.
3. Activation of JGA to release renin.
4. Release of Atrial Natriuretic Factor (ANF) from the heart.

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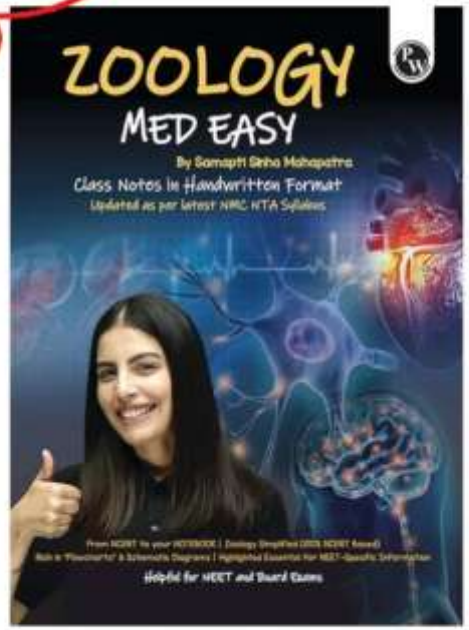

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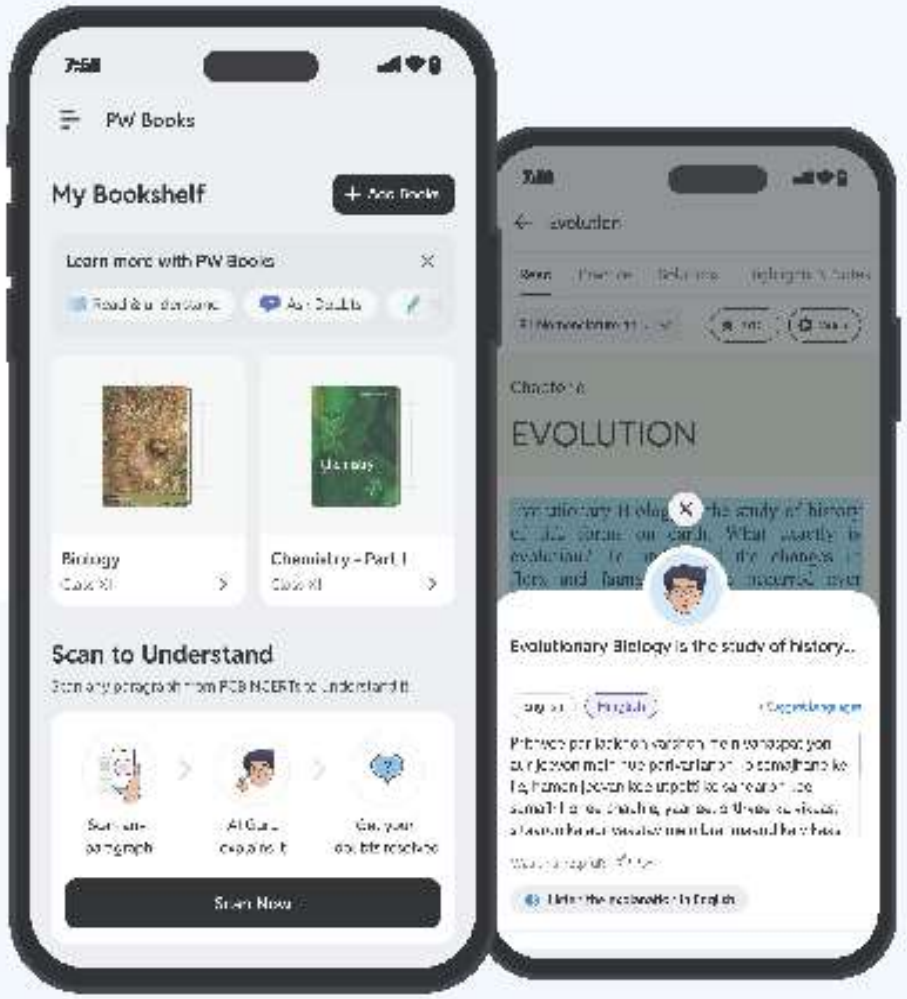

by PHYSICS WALLAH

Homework

- REVISE CLAASNOTES / ZOOLOGY MED EASY

THANK YOU