



PERL EDUCATION

PRIMARY EDUCATION & RIGHTEOUSNESS LEARNING

ALUMNI OF IITs / NITs

JEE - 2021 RESULT



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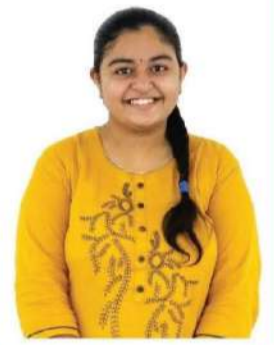


CHAYTALI JAWALEKAR
NIT

NEET - 2021 RESULT



SHREYA MULEY
AIIMS



VIDISHA JOSHI
AIIMS

Ch - 9 : The Excretory System

OUR ICSE - 10th TOPPERS



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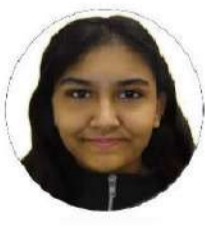
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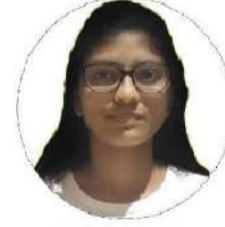
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Krisha Singhal
(91.8%)



Samidha Deshmukh
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Syed Fawaz
(91%)

Short Questions

Question 1: Give a simple definition of excretion.

Question 2: "Kidneys are the master chemist of the body". Comment.

Question 3: Think of the following:

Tears, sweat, saliva, milk, Insulin, urine.

What are these excretion or secretion? Why?

Question 4: Why is urine yellow in colour?

Question 5: Describe about physical properties of urine.

Question 6: Write constituents of urine.

Question 7: What are the functions of ureter and urethra?

Question 8: What is osmoregulation?

Question 9: How does hydrostatic pressure develop in the glomerulus?

Question 10: Write about the excretory role of the lungs.

Question 11: How is urea produced?

Question 12: "Urine is formed from alkaline blood, but it is acidic in nature". Comment.

Question 13: What is dialysis? Under what conditions is it carried out?

Question 14: (i) Give the working of nephron. (ii) What kind of urine (concentration) is produced in human body?

Question 15: Explain the functioning of kidney.

Give Reasons

Question 1: All living things must excrete.

Question 2: Why excretion is necessary?

Question 3: It is necessary to maintain a normal osmotic concentration of blood?

Question 4: Why urine is acidic while blood is alkaline?

Question 5: As a result of ultrafiltration along with excretory products certain useful products like glucose, salt etc. are also filtered but these are not excreted?

Question 6: Glucose absent in the urine of a healthy person?

Question 7: The urine is slightly thicker in summer than winter?

Question 8: There is frequent urination in winter than in summer.

Differentiate

Question 1: The Renal artery and the Renal vein.

Question 2: Renal cortex and Renal medulla.

Question 3: Afferent arteriole and Efferent arteriole.

Question 4: Ureter and Urethra.

Question 5: Excretion and Egestion.

Question 6: Urea and Urine.

Question 7: Excretion and Secretion.

Explain the Terms

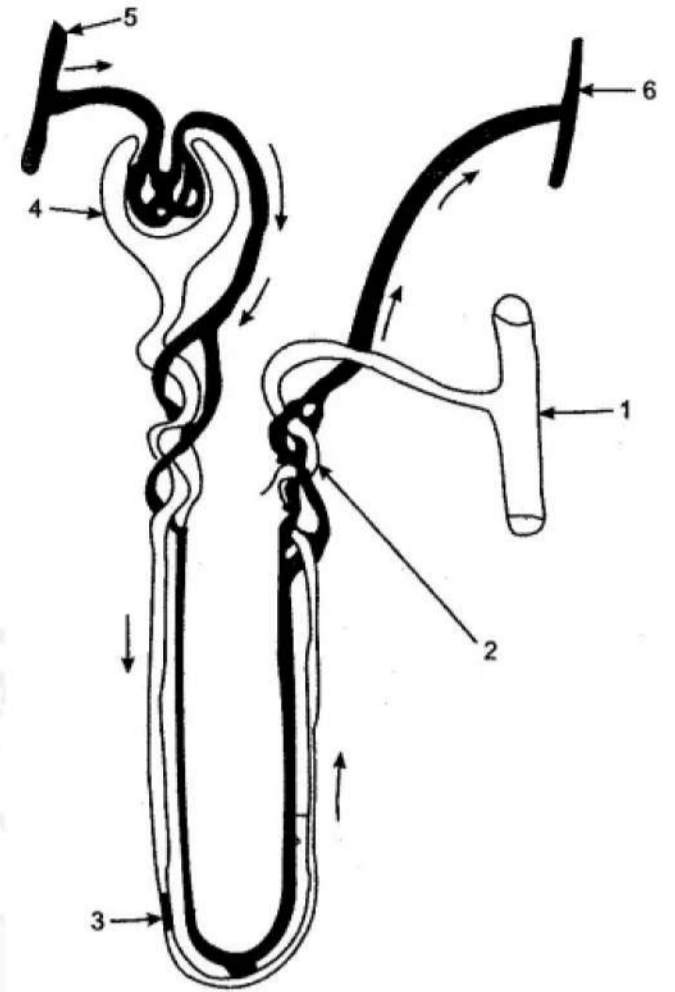
Question:

1. The Bowman's capsule
2. Glomerulus
3. Loop of Henle
4. Ureter
5. Urinary bladder
6. Ureotelism
7. Malpighian body
8. Tubular reabsorption

Diagram Based Questions

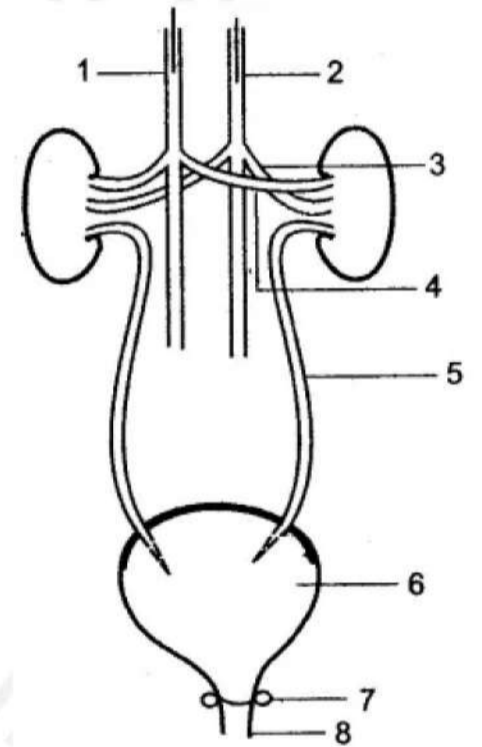
Question 1: The given diagram represents a nephron and its blood supply. Study the diagram and answer the ahead questions:

- (i) Label parts 1,2,3 and 4.
- (ii) State the reason for the high hydrostatic pressure in the glomerulus.
- (iii) Name the blood vessel which contains the least amount of urea in this diagram.
- (iv) Name the two main stages of urine formation.
- (v) Name the part of the nephron which lies in the renal medulla.



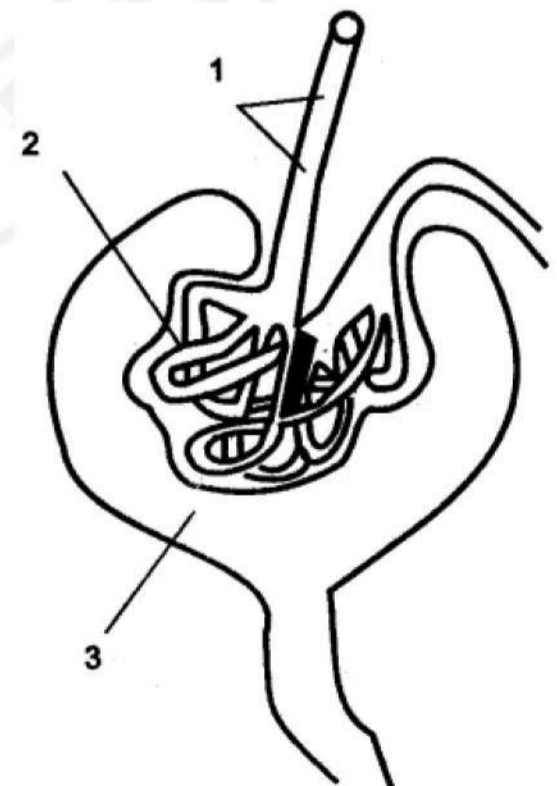
Question 2: The diagram shows the **Excretory System of a Human being**. Study the same and then answer the questions that follow:

- (i) Name the parts labeled 1, 2,3, and 4.
- (ii) Give the main function of the parts labeled 5,6, 7 and 8.
- (iii) Name the endocrine gland which could be added in diagram and state its location/position.



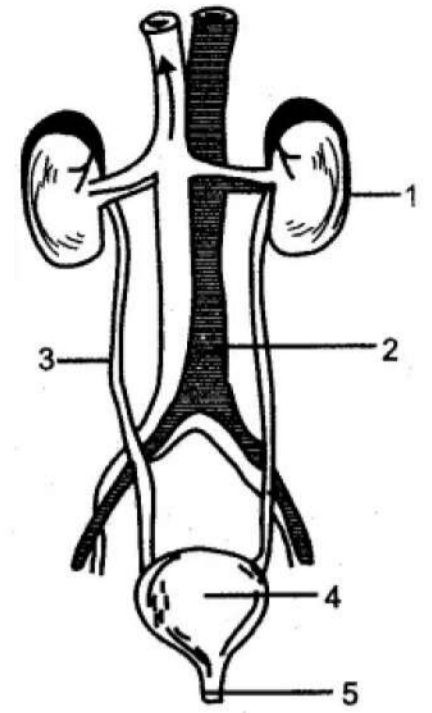
Question 3: Study the diagram given below and then answer the questions that follow:

- (i) Name the region in the kidney where the shown structure is present ?
- (ii) Name the parts labeled 1, 2,3 and 4.
- (iii) Name the stages involved in the formation of urine.
- (iv) What is the technical term given to the process occurring in 2 and 3 ? Briefly describe the process.



Question 4: Given below is the figure of certain organs and associated parts in the human body, study the same and then answer the questions that follow:

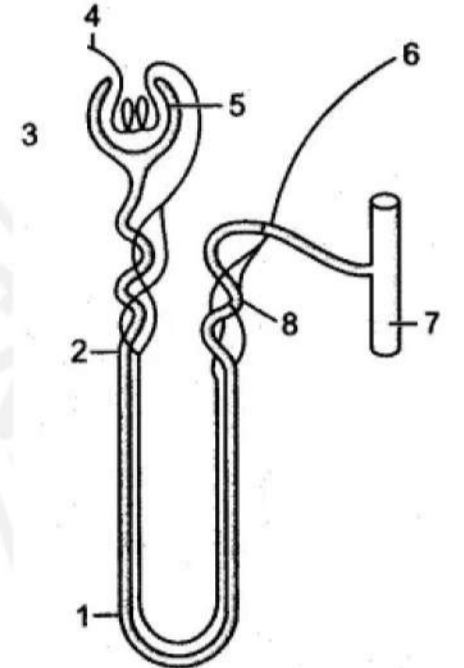
- (i) Name all the organ systems shown completely or even partially.
- (ii) Name the parts numbered 1 to 5.
- (iii) Name the structural and functional unit of the part marked '1'.
- (iv) Name the two main organic constituents of the fluid that flows down the part labeled '3'.
- (v) Name the two major steps involved in the formation of the fluid that passes down the part labeled '3'.



Question 5: The diagram below represents a mammalian kidney tubule (nephron) and its blood supply.

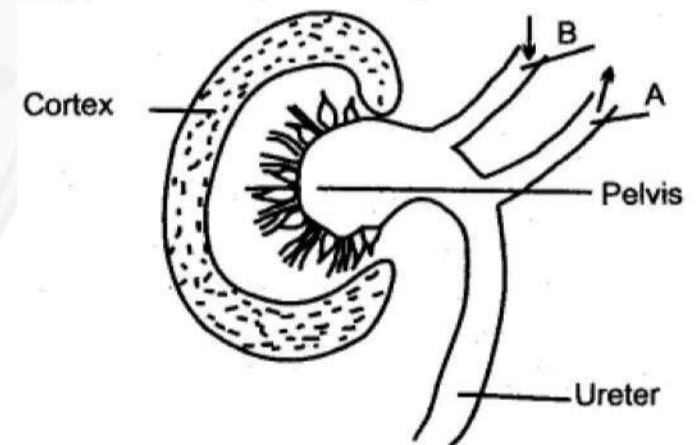
Parts indicated. Label from 1-8.

- (i) Where does ultrafiltration take place ?
- (ii) Which structure contains the lowest concentration of urea ?
- (iii) Which structure contains the highest concentration of urea ?
- (iv) Which structure contains the lowest concentration of glucose ?
- (v) Where is the most water reabsorbed ?



Question 6: Given below is a simple diagram of the human kidney cut open longitudinally. Answer the following questions:

- (i) Give the definition of excretion.
- (ii) Name the units of the kidney.
- (iii) Why does the cortex of the kidney show a 'dotted' appearance
- (iv) Write two functions of kidney.
- (v) Write two differences in the composition of the blood flowing through blood vessels A and B.



Choose the Odd One Out

1. Skin, Kidney, Liver, Lung.
2. Liver, Angiotensin, Kidney, ADH.
3. Renal pelvis, Medullary pyramid, Renal cortex, Renal papilla.
4. Proximal convoluted tubule, Distal convoluted tubule, Henle's loop, Renal corpuscle.
5. Afferent arteriole, Efferent arteriole, Vasa recta, Glomerulus.
6. Antidiuretic hormone, Excretion, Collecting tubule, Hypotonic urine.
7. Glucose, Amino acids, Urea, Na⁺.
8. Urea, Carbonic acid, Creatinine, Uric acid.
9. Urea, Uterus, Urinary bladder, Ureter.

Question:

1. Major excretory organs of man.
2. The organ which produces urea.
3. The structural and functional units of kidney.
4. The division of kidney which is light in colour and subdivided into conical renal pyramids.
5. The Inner concave margin of kidney.
6. The term used for Bowman's capsule and glomerulus together.
7. The branch of renal artery which enters into Bowman's capsule.
8. The blood vessels which brings pure blood to the kidneys:
9. A process by which the unwanted nitrogenous wastes are eliminated from the body.
10. Thin membranous sac serving as the reservoir of urine.
11. The muscle which controls urination.
12. The act of passing urine.
13. The organ in which urine is stored before its elimination.
15. The product which is excreted by the liver.
14. The process by which kidneys regulate the water content of the body.
16. The gas excreted by the lungs.
17. The substance found in excess in the urine of a diabetic patient.

Give Technical Terms**Question:**

1. The organ which filters out urea and uric acid from the blood stream.
2. Name the organ in which urine is stored before its elimination from the body.
3. The organ in man concerned with maintaining water balance in the body.
4. The nitrogenous wastes produced in man.
5. The waste product which is excreted by the liver.
6. What are the organic constituents of normal human urine ?
7. Name two substances found both in urine and sweat.
8. The pigments produced by the breakdown of haemoglobin in liver ?
9. The tube joining the kidney to the urinary bladder.
10. The outer part of the kidney containing the Bowman's capsule.
11. The duct which transports urine from the kidney to the urinary bladder.
12. A mass of fine blood capillaries found in each Bowman's capsule.
13. Name three substances that are reabsorbed from the renal tubules by the secondary capillaries.
14. What are some common excretory product ?
15. The hormone that helps increase the reabsorption of water from the kidney tubules.
16. Which vessel will have the highest concentration of urea long after meal ?
17. Name the substance found in excess in the urine of a diabetic person.

Fill in the Blanks**Complete the following sentences with appropriate words :**

1. The process of removing the metabolic waste from the body is known as _____.
2. Human kidney is made up of _____
3. _____ is the functional unit of kidney.
4. The sum total of all the chemical reactions taking place in the cell is known as _____
5. The process of releasing urine is _____.
6. The U-shaped portion of a nephron located in the medulla region is called _____
7. The knot of blood vessel inside the Bowman's capsule is _____
8. The duct which transports urine from kidney to urinary bladder is _____
9. _____ supplies blood to kidney.
10. The human liver converts ammonia into _____
11. Besides excretion, the kidneys also carry out the important function of _____
12. Automatic self-regulation of salt and water within the body is known of _____
13. The outer surface of the kidney is _____ while the inner surface is _____
14. Urine is collected in the _____
15. Sweat formed in the sweat glands passes into the sweat duct which opens to the outside at the surface of the skin by means of _____.

True & False

Mention, if the following statements are True or False. If false rewrite the wrong statement in its correct form:

1. Sometimes urine may contain certain excess vitamins.
2. Ammonia is converted into urea in kidney.
3. Urine leaves the urinary bladder of a female by means of the uterus.
4. Urethra carries urine from the kidney to the urinary bladder.
5. Glomerular filtration occurs under pressure on the blood as a result of systolic pressure of the heart.
6. Glomerular filtrate consists of many substances such as water, salts, glucose and white blood corpuscles.
7. A diuretic increases the amount of urine.

State the Location

Name	Location
Urinary bladder	
Kidneys	
Renal pyramids	
Medulla of Kidney	

State the Function

Write the functional activity of the following structures:

Name	Function
Nephron	
Bowman's capsule	
Vasopressin	
Aldosterone	
Glomerulus	
Bladder sphincter	
Henle's loop	
Sweat glands	
Kidney	
Ureter	
Bladder	
Urethra	
Adrenal gland	
Renal artery	
Renal vein	
Iliac artery	
Iliac vein	

Multiple Choice Questions

- Excretion commonly involves :
 - Removal of all by-products during catabolism
 - Removal of by-products during anabolism
 - Removal of nitrogenous waste
 - All of the above
- Urea is synthesized from extra amino acids in:
 - Kidney
 - Liver
 - Urinerous tubules
 - Blood
- What is the chief nitrogenous waste in mammals ?
 - Amino acid
 - Ammonia
 - Uric acid
 - Urea
- Profuse sweating take place during heavy muscular exercise. The reason is :
 - To excrete excessive amount of sodium chloride
 - To eliminate excessive lactic acid produced due to anaerobic metabolism
 - To regulate the temperature of the body
 - All of these
- Ultrafiltration occurs in :
 - Bowman's capsule
 - Proximal convoluted tubule
 - Henle's loop
 - Distal convoluted tubule
- In the Bowman's capsule :
 - Afferent arteriole is narrower whereas efferent arteriole is wider
 - Afferent capillary is wider and efferent capillary is narrower
 - Afferent capillary is narrow and efferent capillary is wide
 - Afferent arteriole is wider whereas efferent arteriole is narrower

Match the Column

Column 'II' is a list of items related to ideas in Column 'I'. Match the term in Column 'II' with the suitable idea given in Column 'I'.

Column I	Column II
(i) Liver	(a) basic unit of the brain
(ii) Ova	(b) stimulated by light
(iii) Alveoli	(c) deoxygenated blood
(iv) Cochlea	(d) part of the sclera
(v) Vein	(e) haploid cell
(vi) Neuron	(f) blind sacs
(vii) Stomata	(g) found in the kidney
(viii) Grana	(h) audio receptors
	(i) diffusion of gases
	(j) breakdown of proteins
	(k) diploid cell