

EXCRETORY SYSTEMS

1. Kidneys do not play any significant role in the removal of

- (A) Water (B) Ammonia
(C) Urea (D) Uric acid

2. Marine teleosts excrete

- (A) TMO (B) Hydrogen sulphide
(C) Ammonia (D) Uric acid

3. Match the column I with column II:

Column I Column II

- (A) Earthworm (p) Protonephridia
(B) Cockroach (q) Green glands
(C) Rotifers (r) Nephridia
(D) Prawn (s) Malphigian tubule

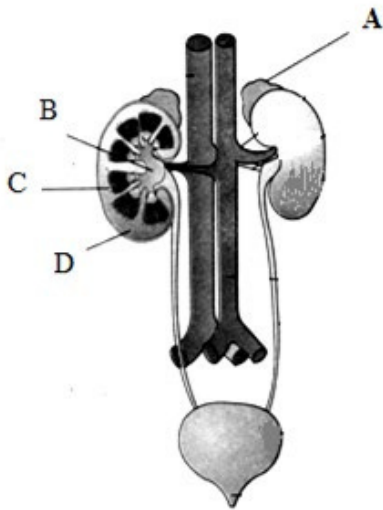
(A) A = q, B = q, C = r, D = s (B)

A = r, B = q, C = s, D = p (C) A =

r, B = s, C = p, D = q (D) A = r,

B = s, C = q, D = p

4. Identify correctly the labeled parts in the following diagram.



- (A) A = Adrenal gland, B = Pelvis, C = Medulla, D = Cortex
- (B) A = Adrenal gland, B = Pelvis, C = Cortex, D = Medulla
- (C) A = Adrenal gland, B = Cortex, C = Pelvis, D = Medulla
- (D) A = Renal capsule, B = Pelvis, C = Medulla, D = Cortex
5. Which of the following statement is incorrect?
- (A) Ureter, blood vessels and nerves enter kidney through Hilum.
- (B) Kidney is situated between the levels of last thoracic and fourth lumbar vertebra close to the dorsal inner wall of the abdominal cavity.

(C) Human kidney measures 10-12 cm in length, 5-7 cm in width, 2-3 cm in thickness.

(D) Average weight of each kidney is 120-170 gms.

6. Renal corpuscle consists of

(A) Glomerulus only

(B) Afferent and efferent arterioles

(C) Glomerulus and Bowman's capsule

(D) Malphigian body and Renal tubule

7. The path taken by glomerular filtrate during its conversion to urine comprises of

(A) Bowman's capsule → Glomerulus → PCT → Henle's loop → DCT → Collecting duct

(B) Glomerulus → Bowman's capsule → PCT → Henle's loop → DCT → Collecting duct

(C) Glomerulus → Bowman's capsule → PCT → DCT → Henle's loop → Collecting duct

(D) Glomerulus → Bowman's capsule → PCT → Henle's loop → Collecting duct → DCT

8. The term cortical nephrons refer to
- (A) Nephrons with short loop of Henle and is completely present in the cortex of kidney.
 - (B) Nephrons with long loop of Henle and extends deep into the medulla.
 - (C) Nephrons with long loop of Henle and is completely present in medulla of kidney.
 - (D) Nephrons with short loop of Henle and extends only very little into the medulla.
9. Which of the following is Uricotelic?
- (A) *Pavo*
 - (B) *Periplaneta Americana*
 - (C) *Naja naja*
 - (D) All of these
10. Amino acids participating in Urea cycle are:
- (A) Arginine, Citrulline, Ornithine
 - (B) Agrinine, Lysine, Ornithine
 - (C) Arginase, Citrulline, Ornithine
 - (D) Arginine, Ornithine, Glycine
11. Which part of nephron is also called as Renal corpuscle?
- (A) Bowman's capsule
 - (B) Glomerulus
 - (C) Both A & B

(D) None

12. Which part of a nephron is not present in the cortex?

- (A) Malpighian corpuscle (B) PCT
(C) DCT (D) Henle's loop

13. What component of blood plasma does not get filtered through nepron in a healthy human?

- (A) Protein (B) Carbohydrates
(C) HCO_3^- (D) Na^+

14. Reabsorption of nephric filtrates is maximum in I_____ and minimum in II

- | I | II |
|------------------|--------------|
| (A) Henle's loop | PCT |
| (B) PCT | DCT |
| (C) Henle's loop | DCT |
| (D) PCT | Henle's loop |

15. Find the correct statement:

- (A) Low level of GFR stimulate the release of Atrial Natriuretic Factor (ANF).
(B) Nearly 70-80 % electrolytes & water are reabsorbed from PCT.
(C) DCT is impermeable to Na^+

(D) substances like glucose, amino acids, Na⁺ etc. in the filtrate are reabsorbed passively.

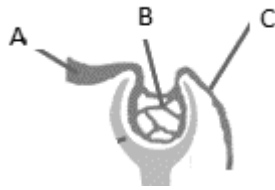
16. Match column I with column II

Column I	Column II
(A) PCT	(p) Reabsorption of urea
(B) DCT	(q) Reabsorption of maximum electrolytes
(C) Henle's loop	(r) Minimum reabsorption
(D) Collecting duct	(s) Conditional reabsorption
(A) A-q, B-p, C-s, D-r	
(B) A-p, B-r, C-s, D-q	
(C) A-q, B-s, C-r, D-p	
(D) A-r, B-s, C-p, D-q	

17. Among the list of substances given below, how many are reabsorbed from nephrons actively:

(i) Na ⁺	(ii) Glucose	(iii) Urea	(iv) Amino acid
(A) only i	(B) i, ii & iv		
(C) i & iii	(D) i, ii, iii & iv		

18. From the diagram given below identify the structure labeled as A, B & C:



A	B	C
(A) Afferent arteriole arteriole	Glomerulus	Efferent
(B) Glomerulus arteriole	Afferent arteriole	Efferent
(C) Efferent arteriole arteriole	Glomerulus	Afferent
(D) Glomerulus arteriole	Efferent arteriole	Afferent

19. Read the statements given below & find the options filling the blanks correctly:

(i) The efferent arteriole emerging from the glomerulus forms a fine capillary network around the renal tubule called the ____A____.

(ii) Vasa recta is absent or highly reduced in ____B____.

(iii) A fall in GFR can activate the ____C____ to release ____D____ which can stimulate the glomerular blood flow and thereby the GFR back to normal.

(iv) The amount of filtrate formed by kidneys per minute is called ___E_____.

(A) (i)- A: Peritubular capillaries

(B) (iii)- C: Hypothalamus D: Renin

(ii)- B: JG cells

(iv)- E: GFR

(C) (i)- A: Peritubular capillaries

(D) (ii)- B: Cortical nephrons

(iv)- E: GFR

(iii)- C: Pituitary gland D: Rennin

20. The ascending limb of Henle's loop is impermeable to ___I___ but allows transport of ___II_____ actively or passively.

I

II

(A) Water electrolytes

(B) Urea water

(C) Electrolytes water

(D) Urea electrolytes

21. The inner lining of PCT is formed by:

(A) Simple cuboidal epithelium

(B) Simple columnar epithelium

(C) Brush bordered columnar epithelium

(D) Brush bordered cuboidal epithelium

22. What percentage of filtrate are absorbed by renal tubules?

- (A) 20% (B) 25%
(C) 75% (D) 99%

23. What is the approximate osmolarity of nephric filtrates as they enter into the loop of Henle?

- (A) 300 mOsmolL⁻¹ (B) 600 mOsmolL⁻¹
(C) 900 mOsmolL⁻¹ (D) 1200 mOsmolL⁻¹

24. The ascending limb of Henle's loop is permeable to

___A___ while descending limb is permeable to
___B___

- | | A | B |
|-----|-------|-------|
| (A) | Water | Urea |
| (B) | NaCl | Water |
| (C) | Water | NaCl |
| (D) | Urea | NaCl |

25. Find the correct statement:

- (A) Small amount of urea is released from the collecting duct into medullary fluid to maintain osmolarity.
(B) Human kidney produces 99 times more concentrated urine.
(C) Cortical nephrons possess a long Henle's loop deep seated into the medulla.

(D) Around 33% of blood pumped from heart enters the kidney every minute.

26. Find the incorrect statement:

(A) The epithelial cells of Bowman's capsule are called podocytes.

(B) Most of the water is reabsorbed through PCT & collecting duct.

(C) Reabsorption of HCO_3^- takes place in DCT.

(D) The osmolarity of filterates formed in PCT is $1200 \text{ mOsmolL}^{-1}$.

27. How many of the factors listed below are known to affect the osmoreceptors and alter the kidney function?

(1) Blood volume

(2) Body fluid volume

(3) Ionic concentration

(4) Heart rate

(A) 1

(B) 2

(C) 3

(D) 4

28. The decrease in blood pressure is caused by:

(A) ADH

(B) Rennin

(C) ANF

(D) None

29. Angiotensin II is known for:

(A) increasing B.P

(B) decreasing B.P.

(C) release of rennin

(D) excretion of Na^+

30. Aldosterone acts on:
- (A) PCT
 - (B) Ascending limb
 - (C) Descending limb
 - (D) DCT
31. A person who is on prolonged fasting for many days may show the presence of _____ in urine.
- (A) Glucose
 - (B) Ketone
 - (C) Protein
 - (D) Blood
32. What causes an increase in osmolarity of nephric filterates as they reach the loop of Henle?
- (A) H₂O reabsorption from PCT & descending limb of Henle's loop.
 - (B) Entry of Na⁺ into descending limb of Henle's loop.
 - (C) H₂O reabsorption from PCT.
 - (D) Entry of urea into Henle's loop.
33. Hypertension may lead to:
- (A) decreased secretion of ANF
 - (B) increased secretion of ADH
 - (C) increased secretion of ANF
 - (D) None of the above

34. What is the approximate excretion of urea from the body every day?

(A) 50-60 gms

(B) 20-30 gms

(C) 30-40 gms

(D) 40-50 gms

35. Micturation is associated with:

(A) Contraction of bladder wall muscles along with sphincter muscles

(B) Contraction of bladder wall muscles

(C) Relaxation of sphincter muscle

(D) Both (B) & (C)

36. Collecting duct opens into:

(A) Renal pyramid

(B) Minor calyx

(C) Major calyx

(D) Renal pelvis

37. Human sweat is a watery fluid containing

(A) NaCl only

(B) Urea

(C) Lactic acid

(D) All of these

38. Which of the following statement is incorrect?

(A) High level of Urea in blood may lead to Kidney failure.

(B) During haemodialysis blood is drained from a convenient Vein.

41. Match the column I and Column II

Column – I

Column – II

A. Uremia

p) Kidney stone

B. Glomerulonephritis

q) Blood in urine

C. Renal calculi r)

High blood urea

D. Hematuria

s) Kidney inflammation

(A) A = q, B = s, C = p, D = r (B) A

= r, B = s, C = p, D = q (C) A = s,

B = r, C = p, D = q (D) A = r, B =

s, C = q, D = p

42. Painful urination is

(A) Anuria

(B) Polyuria

(C) Oligouria

(D) Dysuria

43. A person suffering from muscular dystrophy eliminates a great amount of _____ in urine

(A) water

(B) Glucose

(C) Sulphate

(D) Creatinine

44. Which of the following is correct with reference to haemodialysis?

(A) Absorbs and resends excess of ions.

(B) The dialysis unit has a coiled cellophane tube.

(C) Blood is pumped back through a suitable artery after haemodialysis.

(D) Anti-heparin is added prior to haemodialysis.

45. The dialysis fluid contains all except

(A) Nitrogenous waste

(B) Proteins

(C) Electrolytes

(D) Both 'A' and 'B'

ANSWERS

- | | | | |
|---------|---------|---------|---------|
| 1. (B) | 2. (A) | 3. (C) | 7. (A) |
| 5. (B) | 6. (C) | (B) 11. | 8. (D) |
| 9. (D) | 10. (A) | (C) 15. | 12. (D) |
| 13. (A) | 14. (D) | (B) 19. | 16. (C) |
| 17. (B) | 18. (A) | (C) 23. | 20. (A) |
| 21. (D) | 22. (D) | (D) 27. | 24. (B) |
| 25. (A) | 26. (D) | (B) 31. | 28. (C) |
| 29. (A) | 30. (D) | (B) 35. | 32. (A) |
| 33. (C) | 34. (C) | (D) 39. | 36. (A) |
| 37. (D) | 38.(B) | (C) 43. | 40. (A) |
| 41. (B) | 42. (D) | (D) | 44. (B) |
| 45. (A) | | | |

SOLUTIONS

12. Bowman's capsule, PCT & DCT are present mainly in the renal cortex while Henle's loop is in medulla.
14. Reabsorption of nephric filtrates is maximum in PCT and minimum in Henle's loop.
15. Low level of GFR stimulates the release of Renin, DCT is permeable to Na⁺, substances like glucose, amino acids, Na⁺ etc. in the filtrate are reabsorbed actively.
17. Nitrogenous wastes are reabsorbed passively.
23. The osmolarity of nephric filtrates is maximum in Henle's loop around 1200 mosmolL⁻¹.

26. The osmolarity of filterates formed in PCT is 300 mOsmolL⁻¹.
28. An increase in the blood flow and pressure to the atria of the heart causes the release of Atrial Natriuretic Factor (ANF) which causes vasodilation and thus decreases the blood pressure.
29. Angiotensin II is a potent vasoconstrictor.
38. Blood is removed normally from radial artery during hemodialysis.
39. Lungs excrete CO₂, liver secretes bile in digestive wastes, Skin secrete sweat.
43. Muscular dystrophy leads to muscle wastage & hence leads to formation of creatinine.
44. Cellophane tube is coiled & porous.
45. Nitrogenous wastes needs to be cleared.