Excretory Products and their Elimination

 Assertion (A): The wall of atria release ANF in response to high B.P. and blood volume.

Reason (R): ANF acts as vasodilator and inhibits the release of renin to lower the blood pressure.

- (1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
- (2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
- (3) (A) is true but (R) is false
- (4) Both (A) and (R) are false
- **2. Assertion (A):** Mostly aquatic animals are ammonotelic.

Reason (R): Ammonia is the most toxic form and requires large amount of water for its elimination.

- (1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
- (2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
- (3) (A) is true but (R) is false
- (4) Both (A) and (R) are false
- Assertion (A): Uricotelism is terrestrial adaptation.

Reason (R): Uric acid is least toxic and can be removed with a minimum loss of water.

- (1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
- (2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
- (3) (A) is true but (R) is false
- (4) Both (A) and (R) are false

4. Assertion (A): In PCT all of the essential nutrient and 70-80 percent of electrolytes and water are reabsorbed.

Reason (R): PCT is lined by simple cuboidal brush border epithelium which increases the surface area for reabsorption.

- (1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
- (2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
- (3) (A) is true but (R) is false
- (4) Both (A) and (R) are false
- **5. Assertion (A):** When filtrate pass through descending limb of loop of Henle it becomes concentrate.

Reason (R): Descending limb allows transport of electrolytes actively or passively.

- (1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
- (2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
- (3) (A) is true but (R) is false
- (4) Both (A) and (R) are false
- **6. Assertion (A):** Mammals have the ability to produce a concentrated urine.

Reason (R): Counter current mechanism occurs in vasa recta and Henle's loop.

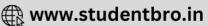
- Both (A) & (R) are true and the (R) is the correct explanation of the (A)
- (2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
- (3) (A) is true but (R) is false
- (4) Both (A) and (R) are false
- **7. Assertion (A):** An increase in glomerular blood pressure can activate the JG cells of kidney to release renin.

Reason (R): Angiotensin I is a powerful vaso constrictor.

- (1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
- (2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
- (3) (A) is true but (R) is false
- (4) Both (A) and (R) are false







- Assertion (A): An increase in body fluid volume activate osmoreceptors, which stimulate the hypothalamus to release ADH.

 Reason (R): ADH facilitates water reabsorption from later parts of the
 - (1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
 - (2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
 - (3) (A) is true but (R) is false
 - (4) Both (A) and (R) are false
- **9. Assertion (A):** Nearly 99 percent of the filtrate has to be reabsorbed by the renal tubules.
 - **Reason (R):** Glucose is reabsorbed by active mechanism in PCT.
 - (1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
 - (2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
 - (3) (A) is true but (R) is false
 - (4) Both (A) and (R) are false
- **10. Assertion (A):** The primary function of sweat is to facilitate a cooling effect on the body surface.
 - **Reason (R):** Small amount of nitrogenous wastes could be eliminated through saliva.
 - (1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
 - (2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
 - (3) (A) is true but (R) is false
 - (4) Both (A) and (R) are false

- **11. Assertion (A):** The descending limb of loop of Henle is permeable to water but almost impermeable to electrolytes.
 - **Reason (R):** Henle's loop plays a significant role in the maintenance of high osmolarity of medullary interstitial fluid.
 - (1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
 - (2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
 - (3) (A) is true but (R) is false
 - (4) Both (A) and (R) are false
- **12. Assertion (A):** In cortical nephrons, the loop of Henle is too short and extends only very little into medulla.
 - **Reason (R):** Vasa recta is absent or highly reduced in cortical nephrons.
 - (1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
 - (2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
 - (3) (A) is true but (R) is false
 - (4) Both (A) and (R) are false
- **13. Assertion (A):** ADH prevents diuresis. **Reason (R):** ADH also affect the kidney function by its constrictory effects on blood vessels.
 - (1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
 - (2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
 - (3) (A) is true but (R) is false
 - (4) Both (A) and (R) are false
- **14. Assertion (A):** The JGA plays a complex regulatory role.
 - **Reason (R):** An increase in glomerular blood flow/GFR can activate JG cells to release renin.
 - (1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
 - (2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
 - (3) (A) is true but (R) is false
 - (4) Both (A) and (R) are false





15. Assertion (A): An increase in blood flow to the atria of heart can cause the release of ANF.

Reason (R): ANF can cause vasodilation and decrease the Blood pressure.

- (1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
- (2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
- (3) (A) is true but (R) is false
- (4) Both (A) and (R) are false
- **16. Assertion (A):** Haemodialysis method is used in case of kidney failure.

Reason (R): Malfunctioning of kidney leads to uremia.

- (1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
- (2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
- (3) (A) is true but (R) is false
- (4) Both (A) and (R) are false
- **17. Assertion (A):** Proximal convoluted tubule is lined by brush-bordered cuboidal epithelium.

Reason (R): PCT is main site of selective reabsorption of useful materials from nephric filtrate.

- (1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
- (2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
- (3) (A) is true but (R) is false
- (4) Both (A) and (R) are false
- **18. Assertion (A):** Diabetes insipidus is marked by excessive urination and too much thirst for water.

Reason (R): Anti-diuretic hormone is secreted by the posterior lobe of pituitary gland.

- (1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
- (2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
- (3) (A) is true but (R) is false
- (4) Both (A) and (R) are false

19. Assertion (A): Antidiuretic hormone, increases the water permeability of distal convoluted tubule.

Reason (R): In the absence of ADH, water re-absorption is considerably increases.

- (1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
- (2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
- (3) (A) is true but (R) is false
- (4) Both (A) and (R) are false
- **20. Assertion (A):** Rate of glomerular filtration is directly proportional to secretion of renin from juxta-glomerular cells.

Reason (R): Renin converts angiotenin-I into angiotenisn II, which causes constriction of efferent arteriole.

- (1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
- (2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
- (3) (A) is true but (R) is false
- (4) Both (A) and (R) are false
- **21. Assertion (A):** Human heart is myogenic. **Reason (R):** Right atrium of human heart has SA node.
 - (1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
 - (2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
 - (3) (A) is true but (R) is false
 - (4) Both (A) and (R) are false
- **22. Assertion (A):** Counter current mechanism operates in juxta-medullary nephrons.

Reason (R): In juxta-medullary nephrons loop of Henle is present only in cortex region and in close proximity with vasa recta

- (1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
- (2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
- (3) (A) is true but (R) is false
- (4) Both (A) and (R) are false





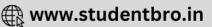


- **23. Assertion (A):** Aldosterone is the main mineralocorticoid of the human body
 - **Reason (R):** Aldosterone is a type of corticoid which regulates the balance of water and electrolytes.
 - (1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
 - (2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
 - (3) (A) is true but (R) is false
 - (4) Both (A) and (R) are false
- **24. Assertion (A):** Diabetes insipidus is marked by excessive urination and too much thirst.
 - **Reason (R):** Anti-Diuretic hormone (ADH) is released from posterior lobe of pituitary gland
 - (1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
 - (2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
 - (3) (A) is true but (R) is false
 - (4) Both (A) and (R) are false
- **25. Assertion (A):** In the descending limb of loop of Henle, the urine is hypertonic while in ascending limb of loop of Henle, the urine is hypotonic
 - **Reason (R):** Descending limb of loop of Henle is permeable to water, and ascending limb is impermeable to salts.
 - (1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
 - (2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
 - (3) (A) is true but (R) is false
 - (4) Both (A) and (R) are false
- **26. Assertion (A):** Atrial Natriuretic Factor is released by wall of atria.
 - **Reason (R):** It inhibits the release of renin from juxtaglomerular apparatus.
 - (1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
 - (2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
 - (3) (A) is true but (R) is false
 - (4) Both (A) and (R) are false

- **27. Assertion (A):** Glomerular filtration is considered as a process of ultrafiltration.
 - **Reason (R):** The glomerular capillary blood pressure causes filtration through three layers.
 - (1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
 - (2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
 - (3) (A) is true but (R) is false
 - (4) Both (A) and (R) are false
- **28. Assertion (A):** Tubular secretion helps in the maintenance of ionic and acid base balance of body fluids.
 - **Reason (R):** During urine formation, the tubular cells secrete substances like H+, K⁺ and ammonia into the filtrate.
 - (1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
 - (2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
 - (3) (A) is true but (R) is false
 - (4) Both (A) and (R) are false
- **29. Assertion (A):** Terrestrial adaptation in animals necessitated the production of lesser toxic nitrogenous metabolic wastes.
 - **Reason (R):** Terrestrial animals must conserve water.
 - (1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
 - (2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
 - (3) (A) is true but (R) is false
 - (4) Both (A) and (R) are false
- **30. Assertion (A):** ADH prevents diuresis. **Reason (R):** ADH facilitates water reabsorption from the latter parts of the tubule.
 - (1) Both (A) & (R) are true and the (R) is the correct explanation of the (A)
 - (2) Both (A) & (R) are true but the (R) is not the correct explanation of the (A)
 - (3) (A) is true but (R) is false
 - (4) Both (A) and (R) are false







Directions: In the following questions, a statement of assertion is followed by a statement of reason.

Mark the correct choice as:

- (a) If both Assertion and Reason are true and Reason is the correct explanation of Assertion.
- (b) If both Assertion and Reason are true but Reason is not the correct explanation of Assertion.
- (c) If Assertion is true but Reason is false.
- (d) If both Assertion and Reason are false.
- 31. **Assertion:** Ammonia should be removed from the body as rapidly as it is formed. **Reason:** In water, ammonia is insoluble.
- 32. Assertion: Comparative to uric acid, urea is a more toxic excretory substance.
 Reason: Birds and insects are uricotelic animals.
- 33. **Assertion :** If human urine is allowed to stand for some time, it smells strongly of ammonia.

Reason: Main constituent of human urine is ammonia.

34. **Assertion:** In cortical nephrons, vasa recta is absent or highly reduced.

Reason: Cortical nephrons are mainly concerned with concentration of urine.

- 35. **Assertion:** Ultrafiltration takes place in presence of effective filtration pressure. **Reason:** In ultrafiltration process, blood is filtered in Bowman's capsule, filtered fluid contain protein & blood corpuscles also.
- 36. **Assertion:** Angiotensin II increases the glomerular blood pressure thereby GFR. **Reason:** To release renin, angiotensin II activates the JG cells.
- 37. Assertion: Vasopressin increases the water permeability of distal convoluted tubule.
 Reason: In absence of ADH, water reabsorption is considerably reduced.

38. **Assertion**: Renal threshold of glucose is said to be 180 mg per 100 ml.

Reason: Glucose starts appearing in the urine when its blood level exceed 180 mg per 100 ml of blood.

39. Assertion : Kidneys maintain the osmotic concentration of the blood.

Reason: Kidneys eliminate either hypotonic or hypertonic urine according to the need of the body.

- **40. Assertion:** Secreting hypotonic urine is effective in reducing urinary loss of water. **Reason:** Hypotonic urine is more concentrated and higher in osmotic pressure than the blood.
- **41. Assertion:** For the regulation of glomerular filtration rate (GFR), the kidneys have built in mechanisms.

Reason: ANF mechanism is one such efficient mechanism.

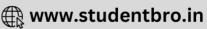
- **42. Assertion:** Deamination take place in liver cells, during the physiology of excretion. **Reason:** Deamination is a process to make use of excess of amino acids that cannot be incorporated into the protoplasm.
- **43. Assertion (A):** When the urine moves through the descending limb, it become hypertonic and as it passes through the ascending limb of Henle's loop it becomes hypotonic.

Reason (R): The descending limb is permeable to sodium ions, while the ascending limb is impermeable to sodium ions.

44. Assertion: In producing a concentrated urine the Henle's loop and vasa recta play a significant role.

Reason: Henle's loop and vasa recta helps in the counter current arrangement.





	ANSWER KEY																			
Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Ans.	1	1	1	1	3	2	4	4	2	2	2	2	2	3	1	2	1	2	3	3
Que.	21	22	23	24	25	26	27	28	29	30										
Ans.	2	3	2	3	3	2	1	1	1	1										

31.	32.	33.	34.	3 5.	36.	37.	3 8.	39.	40.	41.	42.	43.	44.		
С	R	С	С	С	С	R	Δ	Δ	D	С	R	Δ	а		

