Excretory Products and their Elimination

1. **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

3. **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.
(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

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

8. **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 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

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 ultra-filtration.
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 re-absorption 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.	35.	36.	37.	38.	39.	40.	41.	42.	43.	44.			
C	B	C	C	C	C	B	A	A	D	C	B	A	a			