DPP
DAILY PRACTICE PROBLEMS

Class : XIth
Date :

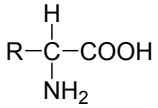
Solutions

Subject : BIOLOGY
DPP No. : 4

Topic :- Excretory Products & Their Elimination

1 **(a)**

Ammonia is produced by amino acid metabolism. Ammonia combine with CO_2 in liver to form urea by urea cycle



General structure of amino acid

2 **(c)**

Active and passive both are the ways to transport electrolyte through loop of Henle

3 **(d)**

The ascending limb of Henle's loop (the next part of renal tubule) continue as another highly coiled tubular region called Distal Convoluted Tubule (DCT).

The juxta medullarly nephrons have long Henle's loop.

Vasa recta is absent or highly reduced in cortical nephrons.

Bowman's capsule encloses the glomerulus.

The Malpighian corpuscles, proximal convoluted tubule (PCT) and distal convoluted tubule (DCT) are situated in the cortical region of the kidney, whereas the Henel's loop in the medulla.

4 **(c)**

The urine formation includes glomerular filtration. Selective reabsorption and tubular secretion. The glucose is reabsorbed at proximal convoluted tubules.

5 **(c)**

Reabsorption is the selective transport of substances across the epithelium of excretory tubule from the filtrate to the interstitial fluid. The proximal convoluted tubule (PCT) region of a nephron does maximum reabsorption of useful substances such as glucose, amino acids, vitamin-C, Na^+,K^+,Ca^{2+}, etc.

6 **(c)**

Kreb-Henseleit cycle

7 **(b)**

Nearly all of the essential nutrients and 70-80 per cent of electrolytes and water are reabsorbed by this segment. PCT also helps to maintain the pH and ionic balance of the body fluids by selective secretion of hydrogen ion and potassium ions into the filtrate and by absorption of HCO_3^- from it

8 **(a)**

Vasopressin

9 **(c)**

Gout happens when there is high level of uric acid in blood

10 **(a)**

Osmotic pressure is a measure of tendency to take in water by osmosis. During urine formation, approximately two-thirds of the $NaCl^-$ and water filtered into Bowman's capsule is immediately reabsorbed across the walls of proximal convoluted tubule. This reabsorption is driven by active transport of Na^+out of the filtrate and into surrounding peritubular capillaries. Cl^-follows Na^+passively because of electric attraction and water follows them both because of osmosis.

11 **(a)**

(i) **Ammonia** (NH_3) It is the first metabolic waste of the protein metabolism. Ammonia is produced in the liver by the process of deamination. Ammonia is very toxic and requires large amount of water for its excretion

(ii) **Urea** White crystalline solid product produced in the liver from CO_2 and NH_3. It is comparatively less toxic. Normal level of urea is 18-38 mg/100 mL of the blood

(iii) **Uric Acid** It is least toxic and insoluble in water. It is produced in the liver by purine catabolism in birds, and reptiles. It can be excreted in solid or semisolid form. Excretion of uric acid in solid or semisolid form conserve water. Uric acid is commercially extracted from the bird dropping (guano)

12 **(d)**

The plasma fluid that filters out from glomerular capillaries into Bowman's capsule of nephrons is called glomerular filtrate. It is a non-colloidal part and possesses urea, water, glucose, amino acids, vitamins, fatty acid, uric acid, creatinine salts, etc. RBCs, WBCs platelets and plasma proteins are the colloidal parts of the blood and do not filtrated out from glomerulus. Thus, plasma proteins are higher in concentration in blood than in glomerular filtrate.

13 **(a)**

Normal urine is slightly acidic. Variations in urine pH are closely related to diet. A high protein diet increases acidity, a diet composed largely of vegetables increases alkalinity.

14 **(c)**

Intestinal Uricolysis converts uric acid into urea and ammonia.

15 **(b)**

Mammals have the ability to produce a concentrated urine. Henle's loop and vasa recta plays a significant role in producing concentrated urine

16 **(b)**

Excretion is the removal of metabolic wastes from the body. CO_2 and water are the metabolic waste for carbohydrates and fat metabolism. Their removal is, therefore called excretion

Osmoregulation is the control over the concentration of the water and salt in the body

17 **(b)**

Ornithine is not found in proteins. It is formed by hydrolyzing arginine and important in the formation of urea.

18 **(a)**

Renal pelvis.

Towards the centre of the inner concave surface of the kidney, there is a notch called hilum through which ureter, blood vessels and nerves enter. Inner to the hilum is a broad funnel-shaped space called the renal pelvis with the projections called calyces

19 **(c)**

ADH released from the posterior pituitary plays an important role in regulating the amount of urine passed out by affecting the permeability of the DCT. Water absorption in DCT mediated by ADH is called facultative water reabsorption.

ANSWER-KEY										
Q.	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
A.	**A**	**C**	**D**	**C**	**C**	**C**	**B**	**A**	**C**	**A**
Q.	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
A.	**A**	**D**	**A**	**C**	**B**	**D**	**B**	**A**	**C**	**C**