

**Topic :- Excretory Products & Their Eliminations**

- 1 (b)  
Vasa Recta are 'U'-shaped blood vessels running parallel to the loop of Henle, forming a counter current system in the juxtamedullary nephron. These are the continuation of efferent arterioles. The slow blood flow of vasa recta and are responsible for maintaining the hyperosmolarity
- 2 (a)  
Urea is generally excreted outside the body through Nephridia or kidney. Animals, which produce urea are known as ureotelic and excretion as ureotelism, *e.g.*, mammals, adults amphibian, etc.
- 3 (a)  
Juxtaglomerular apparatus (JGA) operates a multihormonal Renin-Angiotensin-Aldosterone System RAAS. JGA releases an enzyme renin in the blood, which initiates chemical reactions that produces angiotensin-II, a potential stimulator of aldosterone (mineralocorticoids) release by the glomerulosa cell. It increases blood pressure, blood volume and completes the feedback circuit by supporting the release of renin.
- 4 (c)  
A flame cell is a specialised excretory cell found in the simplest freshwater invertebrates, including, flatworms, rotifers and nemertean. These are the simplest animals to have a dedicated excretory system. Flame cells function like a kidney, removing waste material bundles of flame cells are called protonephridia
- 5 (b)  
Pelvis is the main, basin-shaped cavity of the kidney into which urine is discharged by nephrons. The term 'pelvis' is also used for the basin-shaped structure formed by the hipbones together with the sacrum and coccyx (or caudal vertebrae).
- 6 (b)  
Jaundice is characterized by the presence of abnormal amount of bilirubin in blood and urine.
- 7 (d)  
A – Increasing, B – 300, C – 1200
- 8 (a)  
PCT helps to maintain the pH and ionic balance of the body fluid by selective secretion of

hydrogen ion, ammonia and potassium ion into filtrate and by absorption of  $\text{HCO}_3^-$  from it. **DCT** capable of reabsorption of  $\text{HCO}_3^-$  and selective secretion of hydrogen and potassium and  $\text{NH}_3$  to maintain the pH and sodium-potassium balance in blood

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**(a)**

On taking large amount of proteins, a great amount of urea is excreted out.

10

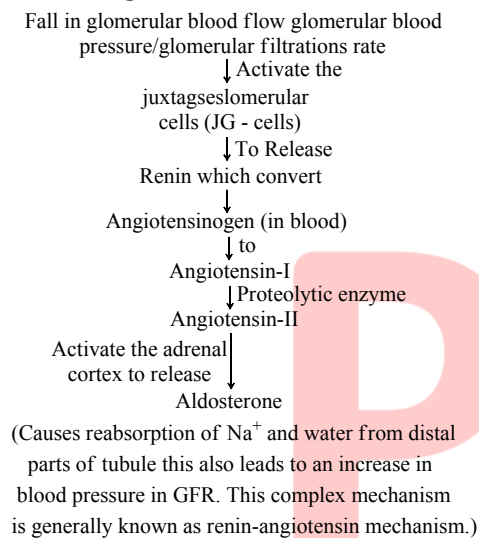
**(c)**

Metabolism of food materials produces some waste materials, and removal of these waste materials from the body is called **excretion**.

11

**(d)**

### Renin-angiotensin mechanism



12

**(b)**

The main function of the Henle's loop is to absorb water from the tubular lumen thus, making the urine concentrated. If they have been absent, the urine would have been more dilute.

13

**(a)**

PCT (Proximal Convoluted Tubule) PCT is lined by simple cuboidal brush border epithelium, which increases the surface area for reabsorption. Which secreted  $\text{H}^+$ ,  $\text{K}^+$  and ammonia into the filtrate and absorption of  $\text{HCO}_3^-$  from it

14

**(b)**

Uric acid, a normal waste product of nucleic acid metabolism, is ordinary excreted in urine without any problems. However, when blood levels of uric acid rise excessively (due to its excessive production or slow excretion), it may be deposited as needle-shaped urate crystals in the soft tissues of joints. An inflammatory response follows, leading into an agonizingly painful attack of **gouty arthritis** (gowte) or gout.

15

**(c)**

**Juxtaglomerular cells of the kidney** secrete an enzyme **renin**, which converts

angiotensinogen in liver into angiotensin-I, which is then converted into angiotensin-II. Thus, this **renin-angiotensin pathway** stimulates the adrenal cortex to produce **aldosterone**, which maintains  $\text{Na}^+$  and water concentration and controls the blood pressure.

16 **(a)**

About 80% of the nephrons have, loop of Henle, which is too short, therefore it is present in the cortical region of the kidney, 20% nephron have long loop of Henle, which dips into the medulla of the kidney

17 **(b)**

ADH hormone prevent the loss of water from our body by increasing the permeability of DCT. Hence, it regulate the osmoregulation of our body

18 **(b)**

A = osmoreceptors

B = suppress

C = Feed back

19 **(c)**

Nitrogen compound is produced by various metabolic process, known as Deamination. A small fraction of nitrogen is used to produce new compounds, while the remaining part is washed away as waste products. First formed vertebrate was fish, which excrete out ammonia. Ammonia is a water soluble compound so, it can diffuse out from the body easily.

20 **(a)**

Kidney regulate the concentration and volume of blood by maintaining chemical balance and removing excess fluids in the form of urine. Urine formation takes place in kidney. It includes glomerulus filtration, selective reabsorption and tubular secretion. Maximum concentrated urine is present in CT. Urine is concentrated in kidney

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