

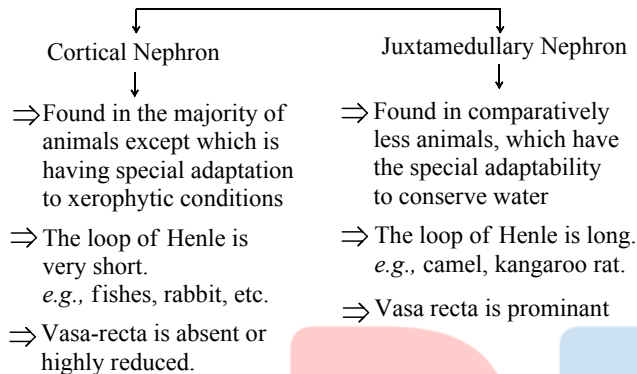
### Topic :- Excretory Products & Their Elimination

- 1 (c)  
Vasopressin
- 2 (d)  
During urine formation, the tubular cells secrete substances like  $H^+$ ,  $K^+$  and ammonia into the filtrate. Tubular secretion is also an important step in urine formation as it helps in the maintenance of the ionic and acid base balance of the body fluids
- 3 (a)  
The expulsion of urine from the urinary bladder is called **micturition**. It is a reflex process but in grown up children and adults, it can be controlled voluntarily to some extent.
- 4 (c)  
When the kidneys are completely damaged and do not function, the patient often receives **haemodialysis** (treatment with an artificial kidney). Haemodialysis is the separation of certain substances (*e.g.*, urea, uric acid, creatinine, etc) from blood by use of a selective permeable membrane.
- 5 (a)  
Glomerular filtrate = Plasma – Proteins  
  
= Blood – (blood cells + plasma proteins)
- 6 (c)  
Renin-angiotensin mechanism.  
ANF (Atrial Natriuretic Factor) mechanism  
↓  
Increase in blood flow to atria of heart  
↓ Activate  
Heart to secrete  
↓  
ANF causes  
↓  
Vasodilation (dilation of blood vessels)  
↓ This causes  
Decrease in blood pressure  
↓  
Hence the glomerular filtration decreases  
ANF – mechanism therefore, acts as a check on renin-angiotensin mechanism
- 7 (b)  
A – Urinary bladder, B – CNS, C – Stretching

8 **(c)**  
Renal portal system is well developed in fishes and amphibians, reduced in reptiles and birds and is absent in mammals.

9 **(d)**  
Fall in Glomerular Blood Flow (GbF)/Glomerular Blood Pressure (GBP)/ and low Glomerular Filtration Rate (GFR) can activate the juxta-glomerulus cells in kidney

10 **(c)**  
Juxta medullary nephrons are found in camel, kangaroo and rat.  
On the basis of the length of loop of Henle, the nephron is of two types



11 **(c)**  
**Renalcaluli** stones or insoluble mass of crystallised salts (oxalates, etc.) formed with in the kidneys

12 **(b)**  
Our lungs removes large amounts of CO<sub>2</sub> (18 L/day) and also significant quantities of water every day

13 **(c)**  
I, III and IV.  
Glomerular capillary blood pressure causes the filtration of the blood through three layers, *i.e.*,

- (i) The endothelium of the glomerular blood vessels
- (ii) Epithelium of Bowman's capsule
- (iii) Basement membrane between these two layers

The epithelium of the Bowman's capsule called podocytes are arranged in an intricate manner so as to leave some minute spaces called podocytes

14 **(b)**  
Ornithine cycle or Kerbs Henseleit cycle takes place in liver cells. It continuously removes dangerously toxic ammonia and some CO<sub>2</sub> from blood and releases less toxic urea into the blood. Kidney continuously remove urea from blood to excrete it in urine.

15 **(d)**  
All of these.  
Osmoreceptors in the body are activated by changes in the blood volume, body fluid volume and ionic concentration. An excessive loss of fluid from the body can activate these

receptors, which stimulate the hypothalamus to release ADH (Antidiuretic Hormone) or vasopressin from neurohypophysis (posterior lobe of pituitary). ADH facilitate the water reabsorption from latter parts of the tubule there by preventing decreases or water loss

16 **(c)**

**Distal Convoluted Tubule (DCT)** Conditional reabsorption of  $\text{Na}^+$  and water takes place in this segment. DCT is also capable of reabsorption of  $\text{HCO}_3^-$  and selective secretion of hydrogen and potassium ions and  $\text{NH}_3$  to maintain the pH and sodium-potassium balance in blood

17 **(a)**

On an average, 25-30 gm of urea is extracted per day. Various conditions can affect the characteristics of urine like type of food, weather condition, etc.

18 **(b)**

Malfunctioning of kidneys can lead of the accumulation of urea in blood, this condition is called uremia which is very harmful and may lead to kidney failure. In such patient urea can be removed by process called haemodialysis

19 **(a)**

Podocyte cells are present on membrane of Bowman capsule glomerular filtrate is concentrated in descending loop of Henle because it is permeable for water and is ascending limb it is diluted because  $\text{Na}^+$ ,  $\text{K}^+$ ,  $\text{Cl}^-$  are juxta-glomerular apparatus is present in distal convoluted tubule

20 **(d)**

*Urine formation involves three stages*

(i) Ultrafiltration (*step-I*)

↓

(ii) Reabsorption (*step-II*)

↓

(iii) Tubular secretion (*step-III*)

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>C</b>	<b>D</b>	<b>A</b>	<b>C</b>	<b>A</b>	<b>C</b>	<b>B</b>	<b>C</b>	<b>D</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>C</b>	<b>B</b>	<b>C</b>	<b>B</b>	<b>D</b>	<b>C</b>	<b>A</b>	<b>B</b>	<b>A</b>	<b>D</b>