

# Excretory Products and their Elimination

## MULTIPLE CHOICE QUESTIONS

## Topic 1

## Introduction

- Least toxic nitrogenous waste is –

   (a) NH<sub>3</sub>
   (b) Urea
  - (c) Uric acid (d)  $NH_3$  and urea
- 2. Which of the following is retained in small amount in kidney matrix of some animals to maintain a desired osmolarity?
  - (a) NH<sub>3</sub> (b) Urea
  - (c) Uric acid (d) NH<sub>3</sub> and uric acid
- **3.** Terrestrial organisms must conserve water. The least amount of water is lost with the excretion of which nitrogenous waste product?
  - (a) NH<sub>3</sub> (b) Uric acid
  - (c) Urea (d) CO<sub>2</sub>
- **4.** The less amount of water is lost with the excretion of which nitrogenous product?
  - (a) NH<sub>3</sub> and urea (b) NH<sub>3</sub> and uric acid
  - (c) NH<sub>3</sub> (d) Urea and uric acid
- **5.** Which of the following is correct about protonephridia/flame cells?
  - (a) Protonephridia are the excretory structures in Platyhelminthes (e.g., *Planaria*), rotifers and some annelids
  - (b) Protonephridia are the excretory structures in the cephalochordates e.g., *Amphioxus*
  - (c) Protonephridia are primarily concerned with ionic and fluid volume regulation i.e., osmoregulation
  - (d) All Excretory products and their elimination

- **6.** Ammonia and urea are waste products derived from the metabolic breakdown of-
  - (a) Lipids
  - (b) Carbohydrates
  - (c) Proteins
  - (d) Sugars
- 7. Which of the following molecules is the most toxic to the cells?
  - (a) NaCl (b) Urea
  - (c) Uric acid (d) Ammonia
- 8. The terms "ammonotelic", "ureotelic", and "uricotelic" are used to describe-
  - (a) Modes of excretory system development
  - (b) The actions of hormones on the excretory systems
  - (c) The types of nitrogenous waste produced by various classes of vertebrates
  - (d) Modification of kidney tubules to enhance excretion
- 9. Which of the following statements is correct?
  - (a) Many bony fishes, aquatic amphibia and aquatic insects are ammoniotelic
  - (b) Ammonia is readily soluble
  - (c)  $NH_3$  is generally excreted by the body surface or through gills (in fishes) as  $NH_4^+$
  - (d) All of the above
- 10. Which of the following statements is wrong?
  - (a) Kidney does not play any significant role in the removal of ammonia
  - (b) Ureotelic animals excrete most of the

nitrogenous waste as urea

- (c) Ammonia and urea are the waste products derived from the metabolic breakdown of proteins
- (d) None of the above is wrong
- 11. Urea and uric acid are -
  - (a) More toxic than NH<sub>2</sub>
  - (b) Less toxic than NH<sub>3</sub>
  - (c) Equally toxic to NH<sub>3</sub>
  - (d) Non-toxic
- **12.** Which of the following group of animals is ureotelic?
  - (a) Many terrestrial amphibians
  - (b) Mammals
  - (c) Marine fishes
  - (d) All of the above
- 13.  $NH_3$  is converted into urea in
  - (a) Kidney (b) Liver
  - (c) Spleen (d) Intestine
- **14.** Which of the following groups of animals is uricotelic?
  - (a) Reptiles
  - (b) Insects
  - (c) Birds and land snail
  - (d) All of the above
- **15.** Excretion of nitrogenous products in semi-solid forms by -
  - (a) Uricotelic animals
  - (b) Ureotelic animals
  - (c) Ammoniotelic animals
  - (d) Amniotes
- 16. Match the column I with column II.

	Column I		Column II
A.	Nephridia	I.	Crustaceans (Prawn)
В.	Malpighian tubules	II.	Annelids (Earthworm)
C.	Anteenal Gland or Green Glands	III.	Insects (Cockroach)

- (a) A-I, B-II, C-III
- (b) A-III, B-II, C-I

- (c) A-II, B-III, C-I
- (d) A-II, B-I, C-III

## TopicHuman Excretory System2

- **17.** Which of the following statements is wrong about the human excretory system?
  - (a) Excretory system consists of one pair of bean shaped kidneys, one pair of ureter, a urinary bladder and a urethra.
  - (b) Kidneys are situated between the 12<sup>th</sup> thoracic and 3rd lumbar vertebrae close to the dorsal wall in abdominal cavity.
  - (c) Right kidney is a little higher level than the left one.
  - (d) All of the above

#### 18. Each kidney of adult human measures-

	Length	Width	Thickness	Weight
A)	10 - 12	5 - 7cm	2 - 3cm	120-170 g
	cm			
B)	10 - 20	10 - 12	6 - 12 cm	40-50 g
	cm	cm		
C)	2 – 6 cm	10 - 12	6 - 12 cm	40-50 g
		cm		
D)	10 - 12	5 - 7	2 - 3 mm	120-170 g
	mm	mm		

- **19.** The part of kidney which serves as gateway for ureter, nerves and blood vessels is-
  - (a) Hilum (b) Renal pore
  - (c) Minor calyx (d) Major calyx
- **20.** Inner to the hilum of kidney is a broad funnel shaped space called-
  - (a) Cortex (b) Medulla
  - (c) Pelvis (d) Calyx
- 21. Which of the following statements is false?
  - I. Outer cortex and inner medulla are the two zones in kidney
  - II. Medulla is divided into about 8 to 18 renal pyramids
  - III. Pyramid projects into calyx
  - IV. Inwards extension of cortex between the

pyramids is called renal column of Bertini

- (a) I and IV (b) II and IV
- (c) IV (d) None
- 22. Observe the following figure.



Identify structure A to E.

	Α	В	С	D	E
A	Superior vena cava	Inferior vena cava	Dorsal Aorta	Urethra	Pelvis
В	Inferior vena cava	Superior vena cava	Dorsal Aorta	Urethra	Pelvis
C	Ureter	Inferior vena cava	Dorsal Aorta	Urethra	Pelvis
D	Dorsal Aorta	Inferior vena cava	Urethra	Cortex	Pelvis

- **23.** Which one of the following is the structural and functional unit of kidney?
  - (a) Urethra (b) Urinary bladder
  - (c) Renal column (d) Nephron
- 24. Renal corpuscle or Malpighian body is-
  - (a) Glomerulus only
  - (b) Glomerulus along with Bowman's capsule
  - (c) Bowman's capsule
  - (d) Glomerulus with afferent arteriole
- **25.** Which one of the following is a tube that carries urine from kidney to the urinary bladder?
  - (a) Loop of Henle (b) Ureter
  - (c) Urethra (d) Uvula

26. Study the following figure:



Identify A to D

	Α	В	С	D
Α	Cortex	Calyx	Renal Column	Ureter
В	Calyx	Cortex	Renal Column	Ureter
C	Medulla	Cortex	Renal Column	Urethra
D	Calyx	Cortex	Renal Column	Urethra

- 27. Each kidney has how many nephrons?
  - (a) About 2 million (b) About 1 million
  - (c) About 5000 (d) About 50000
- **28.** The bed of capillaries in the vertebrate kidney where water, urea and salts are filtered out of the blood is the -
  - (a) Bowman's capsule
  - (b) Collecting duct
  - (c) Glomerulus
  - (d) Loop of Henle
- **29.** All of the following structures are situated in the renal cortex except
  - (a) Loop of Henle
  - (b) Malpighian corpuscle
  - (c) PCT
  - (d) DCT
- **30.** The DCTs of many nephrons open into a straight tube called
  - (a) PCT
  - (b) Loop of Henle
  - (c) Collecting duct
  - (d) Bowman's capsule

- 31. Which of the following statements is false?
  - (a) Renal tubule starts with a double-walled cup like structure called Bowman's capsule
  - (b) In majority of nephrons, the loop of Henle is too short and such nephrons are cortical nephrons
  - (c) Juxta medullary nephron has long loop of Henle
  - (d) None
- **32.** Which is the correct pathway for passage of urine in humans?
  - (a) Collecting tubule  $\rightarrow$  ureter  $\rightarrow$  bladder  $\rightarrow$  urethra
  - (b) Renal vein $\rightarrow$  renal ureter $\rightarrow$  bladder $\rightarrow$  urethra
  - (c) Pelvis  $\rightarrow$  Medulla  $\rightarrow$  bladder  $\rightarrow$  urethra
  - (d) Cortex $\rightarrow$  Medulla $\rightarrow$  bladder $\rightarrow$  ureter
- **33.** Match the column I with column II. Column I Column II

A.	Delivers blood to glomerulus	I.	Ascending and descending limb
B.	Carries urine to pelvis, also acts in water reabsorption	II.	Renal artery
C.	Collects filtrate from Bowman's capsule	III.	Collecting duct
D.	Loop of Henle	IV.	РСТ

- (a) A II, B III, C IV, D I
- (b) A-I, B III, C-II, D- IV
- (c) A II, B IV, C I, D III
- (d) A- IV, B III, C II, D I
- **34.** Which of the following is correct about juxta medullary nephrons?
  - (a) Vasa recta is prominent
  - (b) Loop of Henle is long
  - (c) NaCl is returned to the interstitium by ascending limb of vasa recta
  - (d) All of the above
- **35.** Which of the following places the region of nephron in their correct sequence with respect to flow of tubular fluid?

- (a) PCT→ Descending limb of Henle (DLH) →
   Ascending limb of Henle (ALH) → DCT→
   Collecting duct(CD)
- (b) PCT $\rightarrow$ ALH  $\rightarrow$ DLH  $\rightarrow$ OCT $\rightarrow$ CD
- (c) ALH  $\rightarrow$ DLH  $\rightarrow$ PCT $\rightarrow$ OCT $\rightarrow$ CD
- (d) OCT $\rightarrow$ ALH  $\rightarrow$ DLH  $\rightarrow$ PCT $\rightarrow$ CD
- **36.** Vasa recta is
  - (a) I-shaped (b) S-shaped
  - (c) U-shaped (d) J-shaped
- 37. In glomerulus, afferent arteriole -
  - (a) is wider than efferent arteriole
  - (b) and efferent arteriole has similar diameter
  - (c) is narrower than efferent arteriole
  - (d) is narrow than efferent capillaries
- **38.** Which of the following is incorrect?
  - (a) Blood vessel leading to glomerulus is called efferent arteriole
  - (b) Vasa recta, peritubular capillaries, Glomerulus all have blood
  - (c) Cortical nephron has no or highly reduced vasa recta
  - (d) Vasa recta runs parallel to the Henle's loop in juxtamedullary nephrons

## Topic 3

### **Urine Formation**

- 39. Urine formation involves-
  - (a) Ultra filtration and reabsorption occurring in different parts of nephron
  - (b) Ultrafiltration and reabsorption occurring in same part of nephron
  - (c) Ultrafiltration, reabsorption and secretion occurring in different parts of nephron
  - (d) Ultrafiltration, reabsorption and secretion occurring in same part of nephron
- 40. Match the column I with column II.

	Column I		Column II
А	РСТ	I.	Concentrated urine formation
-	D. 677		
В	DCT	II.	Filtration of blood

С	Lo	Loop of Henle			I.	Reabsorption of 70 - 80% electrolytes		
D	Counter- current mechanism				V.	Ionic balance		
Е	Renal corpuscle				Ϊ.	Main gradi	tenance of	of conc. edulla
	A B					С	D	Е
(a)		III	IV			Ι	V	II
(b	)	III	V			IV	II	Ι

- 41. Which of the following statements is correct?
  - Renal vein take blood away from kidney I.

Π

IV

V

V

IV

Π

II. Loop of Henle conserves water

III

I

(c)

(d)

Ι

Ш

- III. Podocytes occur in inner wall of Bowman's capsule
- IV. Ultrafiltrate nephric filtrate is plasma minus proteins.
- (a) I and II (b) I and Ill
- (c) III and IV (d) I, II, III, IV
- 42. The glomerular capillaries cause filtration of blood through layers –
  - (b) 2 (a) 1
  - (c) 3 (d) 6
- **43.** The layers between the blood in glomerular and the Bowman's space are:
  - (a) Tunica media + Cuboidal epithelium+ Basement's membrane
  - (b) Endothelium + Epithelium of Bowman's capsule + Basement membrane between the 2 layers
  - (c) Endothelium of glomerular blood vessel + Endothelium of Bowman's capsule + Parietal layer of Bowman's capsule
  - (d) Tunica media + Epithelium of Bowman's capsule + Endothelium of Bowman's capsule
- 44. On average, \_\_\_\_\_ mL of blood is filtrated by the kidney per minute which constitute roughly \_\_\_\_ of the blood pumped out by each ventricle of heart in a minute.

- (a) 125 ml, 1/6th
- (b) 100 -125 ml, 1/6th
- (c) 1100 -1200 ml, 1/5th
- (d) 5 L, 1/10th
- **45.** The amount of the filtrate formed by the kidney / minute is called GFR (Glomerular Filtration Rate). The GFR of a healthy adult is-
  - (a) 80 mL/min (b) 125 mL/min
  - (d) 20 mL/min (c) 300 mL/min
- 46. The GFR/day in a healthy adult is
  - (a) 5 L (b) 180 L
  - (c) 200 L (d) 20 L
- 47. Juxtaglomerular apparatus, a special sensitive cellular region is formed in -
  - (a) PCT and DCT
  - (b) PCT and DCT at the location of their contact
  - (c) PCT and loop of Henle at the location of their contact
  - (d) DCT and afferent arteriole at the location of their contact
- 48. Of the filtrate, nearly how many of it is reabsorbed by the renal tubules?
  - (a) 5% (b) 99% (c) 50%
    - (d) 25%

## Topic 4

#### **Function of the Tubules**

- **49.** Which of following statements is false?
  - (a) The kidney has built-in mechanisms for regulation of GFR
  - (b) Tubular secretion does not play any significant role in urine formation
  - (c) The amount of urine output per day in normal adult is about 1.5 L
  - (d) During urine formation tubular cells secrete  $H^+$ ,  $K^+$  and  $NH_2$  in the filtrate
- 50. Which of the following statements about proximal convoluted tubule (PCT) is false?
  - (a) It is lined by simple cuboidal brush border epithelium which increases the surface area

- (b) Nearly all the essential nutrients, 70 80% electrolytes, 70%  $H_2O$  are reabsorbed by PCT
- (c) PCT is not the site of selective secretion
- (d) PCT helps to maintain the pH and ionic balance of body fluids
- **51.** PCT helps to maintain the pH and ionic balance of body fluids by -
  - (a) Selective secretion of H<sup>+</sup>, NH<sub>3</sub> and K<sup>+</sup> ions in filtrate
  - (b) Reabsorption of  $HCO_3^-$  from filtrate
  - (c) Both (a) and (b)
  - (d) Secreting regulatory hormone like renin and angiotensinogen
- **52.** If Loop of Henle were absent from mammalian nephrons, which of the following is to be expected?
  - (a) The urine will be more dilute
  - (b) There will be no urine formation
  - (c) The urine will be more concentrated
  - (d) There will be hardly any change in quality and quantity of urine formed
- **53.** Use following diagram to complete the statements about the human nephron –



- I. The composition of the filtrate would be most like plasma in the tubule next to the letter.
- II. The urine would be most concentrated in the collecting duct next to letter
- III. Most of the glomerular filtrate is reabsorbed into peritubular capillary next to the letter
- IV. Conducting of urine to pelvis of the kidney from the structure next to the letter
- V. Most water is reabsorbed by the structure next to the litter

- (a) A C B E D (b) A E B C D
- $(c) A B E C D \qquad (d) A E B D C$
- **54**.
- I. Reabsorption in this region is minimum.
- II. This region plays a significant role in the maintenance of high osmolarity of intestinal fluid
- III. Its descending limb is permeable to water but almost impermeable to electrolytes
- IV. Its ascending limb is impermeable to water but allows transport of electrolyte actively or passively
- V. In descending limb filtrate is hypertonic while in ascending limb filtrate is hypotonic

The above characteristics are associated with - (a) PCT

- (b) Loop of Henle
- (c) DCT
- (d) Bowman's capsule
- 55. Which of the following statements is correct?
  - I. Reabsorption of water occurs passively in the initial segment of nephron
  - II. Nitrogenous waste are absorbed by passive transport
  - III. Conditional reabsorption of Na<sup>+</sup> and water takes place in DCT
  - IV. DCT reabsorbs HCO<sub>3</sub><sup>-</sup>
  - V. DCT is capable of selective secretion of H<sup>+</sup>,
     K<sup>+</sup> and NH<sub>3</sub> to maintain pH and Na<sup>+</sup> K<sup>+</sup>
     balance in blood
  - VI. Substances like glucose, amino acids, Na<sup>+</sup>, etc., in the filtrate are reabsorbed actively
  - (a) I and II (b) II and III
  - (c) IV and V (d) All
- **56.** Tubular secretion helps to maintain a proper acid-base balance by removing one of the following from blood
  - (a)  $H^+$  and  $NH_3$  (b) Uric acid
  - (c)  $H^+$  and urea (d)  $NH_3$  and creatinine
- **57.** Which of the following statements is false regarding the collecting duct?

- I. Collecting duct is a straight duct
- II. It extends from the cortex to medulla
- III. Large amount of water could be reabsorbed from it to produce concentrated urine.
- IV. Small amount of urea diffuses out from it into the medulla to keep up the osmolarity
- V. It plays a role to maintain pH and ionic balance of blood by the selective secretion of H<sup>+</sup> and K<sup>+</sup> ions
- (a) Only I (b) Only III
- (c) IV and V (d) None

## TopicMechanism of Concentration of5the Filtrate

- **58.** Mammals have the ability to produce \_\_\_\_\_\_ urine.
  - (a) Hypotonic (b) Hypertonic
  - (c) Isotonic (d) Alkaline
- **59.** Which one plays an important role in countercurrent mechanism?
  - (a) Vasa recta (b) PCT
  - (c) Loop of Henle (d) Both (a) and (c)
- **60.** In which of the following counter current operates?
  - (a) In ascending limb of loop of Henle
  - (b) In descending limb of loop of Henle
  - (c) In ascending limb or descending limb of vasa recta
  - (d) Between the 2 limb of Henle's loop and those of vasa recta
- 61. Medullary gradient is developed by all the following except -
  - (a) Reabsorption of Na<sup>+</sup> from ascending limb of Henle's loop into medullary interstitium
  - (b) Reabsorption of Na<sup>+</sup> from descending limb of Henle's loop
  - (c) Diffusion of small amount of urea from collecting duct into medullary interstitium
  - (d) Proximity between Henle's loop and vasa recta as well as the counter-current in them

- 62. The medullary gradient is mainly caused by -
  - (a) Urea &  $K^+$  (b)  $H^+$  and  $K^+$
  - (c) NaCl and Urea (d) Urea and  $H^+$
- **63.** The counter-current mechanism helps to maintain a concentration gradient. This gradient helps in -
  - (a) Easy passage of water from medulla to collecting tubule and thereby concentrating urine
  - (b) Easy passage of water from collecting tubule and thereby concentrating urine
  - (c) Easy passage of water from medullary interstitial fluid to collecting tubule and thereby diluting urine
  - (d) Inhibition of passage of water between the collecting tubule and medulla and so isotonic urine is formed
- **64.** NaCl is transported by the ascending limb of Henle's loop which is exchanged with -
  - (a) DCT
  - (b) PCT
  - (c) Ascending limb of vasa recta
  - (d) Descending limb of vasa recta
- **65.** NaCl is returned to the put here a dash as in fill in blanks type by the ascending limb of vasa recta.
  - (a) Ascending limb of Henle's loop
  - (b) DCT
  - (c) PCT
  - (d) Interstitial fluid of medulla
- **66.** Human kidney can produce urine nearly how many times concentrated than the initial filtrate formed?
  - (a) 4 (b) 2
  - (c) 10 (d) 100
- **67.** The high osmolarity of the renal medulla is maintained by all of the following, except -
  - I. Diffusion of salt from the ascending limb of the loop of Henle
  - II. Active transport of salt from the upper region of the ascending limb
  - III. The spatial arrangement of juxtamedullary nephrons

- IV. Diffusion of urea from the collecting duct
- V. Diffusion of salt from the descending limb of the loop of Henle
- (a) Only I (b) Only V
- (c) III and IV (d) I and V

## TopicRegulation of Kidney Function6

- **68.** Which one of the following is produced in the kidneys?
  - (a) Rennin (b) Renin
  - (c) Uricase (d) Arginase
- 69. Reabsorption of Na<sup>+</sup> is controlled by
  - (a) Vasopressin or ADH
  - (b) Aldosterone
  - (c) Renin
  - (d) Rennin
- **70.** The reabsorption of water in the kidneys is under the control of a hormone
  - (a) STH (b) ACTH
  - (c) LH (d) ADH/Vasopressin
- **71.** Antidiuretic hormone secretion increases when the hypothalamus is stimulated by–
  - (a) Angiotensin receptors
  - (b) Glucose receptors
  - (c) Osmoreceptors
  - (d) Renin receptors
- **72.** The kidneys help regulate acid-base balance by controlling the level of \_\_\_\_\_ in the blood.
  - (a)  $CO_2$  (b)  $H^+$
  - (c)  $HCO_3^-$  (d) B and C
- **73.** The functioning of the kidneys is efficiently monitored and regulated by hormonal feedback mechanisms involving -
  - (a) Hypothalamus only
  - (b) JGA only
  - (c) The heart only
  - (d) Hypothalamus, JGA and heart (to certain extent)

- 74. Osmoreceptors in the body are activated by changes in -
  - (a) Blood volume but not body fluid volume
  - (b) Body fluid volume but not blood volume
  - (c) Blood volume and body fluid volume
  - (d) Blood volume, body fluid volume and ionic concentration
- **75.** Which of the following sequences is correct for regulation of kidney function?
  - (a) An excess loss of water from body→ Stimulates hypothalamus→ Osmoreceptors→ Neurohypophysis→ ADH→ Increases water permeability of DCT and CT→ Prevention of diuresis
  - (b) An excess loss of fluid from body→ Osmoreceptors→ Hypothalamus→ Neurohypophysis→ ADH→ Increases water permeability of DCT and CT→ Prevention of diuresis.
  - (c) An excess loss of fluid from body→ Osmoreceptors→ Hypothalamus→ Neurohypophysis→ Aldosterone→ Water permeability of DCT and CT increases→ Prevention of diuresis
  - (d) An excess loss of fluid from body→ osmoreceptor→ Hypothalamus→ Adenohypophysis→ ADH→ Increases water permeability of DCT and CT→ Prevention of diuresis
- 76. Osmoregulation is the function of-
  - (a) Oxytocin
  - (b) Prolactin
  - (c) Vasopressin (ADH)
  - (d) None of the above
- 77. ADH is synthesised by, \_\_\_\_\_\_ released by \_\_\_\_\_\_ and acts on \_\_\_\_\_\_.
  - (a) Hypothalamus, Neurohypophysis, DCT and CT
  - (b) Hypothalamus, Neurohypophysis, Loop of Henle
  - (c) Hypothalamus, Adenohypophysis, DCT and CT

- (d) Hypothalamus, Adenohypophysis, Loop of Henle
- 78. Which of the following sequence is correct?
  - (a) An increase in body fluid volume → switch off the Osmoreceptors → suppresses the ADH release
  - (b) ADH → Constricting effect on blood vessel→ B. P. high~ Glomerular blood flow more → GFR more
  - (c) Angiotensinogen→ Angiotensin I→ Angiotensin II→ Adrenal cortex → Aldosterone
  - (d) All of the above
- **79.** Which of the following factors can activeate the JG cells to release renin?
  - (a) A fall in glomerular blood pressure (GBP)
  - (b) A fall in glomerular blood flow (GBF)
  - (c) A fall in GFR
  - (d) A fall in GFR / GBP / GBF
- 80. Which of the following statements is false?
  - (a) Angiotensin II, being a powerful vasoconstrictor, increases glomerular pressure and thereby GFR
  - (b) Angiotensin II activates the adrenal cortex to release aldosterone
  - (c) Aldosterone promotes reabsorption of Na<sup>+</sup> and water from the DCT and CT leading to an increase in B.P. and GFR
  - (d) ANF causes vasoconstriction
- **81.** RAAS (Renin -Angiotensinogen Aldosterone System)-
  - (a) Is triggered when the juxtaglomerular cells of JGA releases renin in response to various stimuli
  - (b) Is responsible for regulation of kidney function
  - (c) Are stimulated when ANF is more in blood
  - (d) Both (a) and (b) are correct
- **82.** Which of the following is true about Atrial Natriuretic factor (ANF)?
  - (a) An increase in blood volume and B.P. stimulates cardiac atria to release ANF

- (b) ANF promotes vasoconstriction and thereby decrease B.P.
- (c) ANF acts as a check on RAAS
- (d) Both (a) and (c)
- 83. Renin-angiotensin pathway controls -
  - (a) Ultrafiltration
  - (b) Blood pressure
  - (c) Glucose reabsorption
  - (d) Cardia output
- **84.** RAAS secretes which of the following hormones?
  - (a) Glucocorticoids
  - (b) Renin

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- (c) Mineralocorticoids
- (d) All of the above

### Micturition

- **85.** The expulsion of urine from the urinary bladder is called -
  - (a) Uricolysis (b) Micturition
  - (c) Uremia (d) Anuria
- 86. In micturition -
  - (a) Urethra l sphincter relaxes
  - (b) Ureter relaxes
  - (c) Ureter contracts
  - (d) Urethra contracts
- **87.** The outline of principal event of urination is given below in unordered manner:
  - I. Stretch receptors on the wall of urinary bladder send signal to the CNS
  - II. The bladder fills with urine and becomes distended
  - III. Micturition
  - IV. CNS passes on motor messages to initiate the contraction of smooth muscles of bladder and simultaneous relaxation of urethral sphincter

The correct order of steps for urination is-

- (a)  $I \rightarrow II \rightarrow III \rightarrow IV$
- (b)  $IV \rightarrow III \rightarrow II \rightarrow I$

- (c)  $II \rightarrow I \rightarrow IV \rightarrow III$
- (d) III  $\rightarrow$  II  $\rightarrow$ I  $\rightarrow$  IV
- **88.** The neural mechanisms causing urination is called -
  - (a) Scarth reflex
  - (b) Withdrawal reflex
  - (c) Micturition reflex
  - (d) None
- 89. Average pH of human urine is -
  - (a) 6 (b) 9
  - (c) 3 (d) 7

90. Match the column I with column II.

	Column I		Column II
A.	Uremia	I.	Henle's loop
B.	Ketonuria	II.	Ketone bodies in urine
C.	Glycosuria	III.	Artificial kidney
D.	Blood	IV.	Glucose in urine
	dialyser		
E.	Concentration	V.	Accumulation of urea in
	of urine		blood

(a) A - V, B - II, C - IV, D - III, E - I
(b) A- III, B - II, C - IV, D - I, E - V

- (c) A-I, B II, C IV, D II, E V
- (d) A- I, B II, C IV, D V, E III
- 91. Diabetes mellitus is characterized by-
  - (a) Oilgonuria
  - (b) Ketonuria and glycosuria
  - (c) Anuria
  - (d) Haematuria
- **92.** How much urea is excreted per day by a normal adult?
  - (a) 0 gm (b) 25 30 gm
  - (c) 50 gm (d) 1 2 gm

## TopicRole of other Organs in8Excretion

- **93.** Other than kidneys, which of the following also helps in the elimination of excretory wastes?
  - (a) Skin (b) Liver
  - (c) Lungs (d) All

- **94.** How much CO<sub>2</sub> is removed per minute by our lungs?
  - (a) 18 mL (b) 200 mL (c) 1L (d) 8 L
- 95. Which of the following statements is false?
  - (a) Micturition is carried out by a reflex
  - (b) Cholesterol is excreted in the bile and waxes are excreted in the sebum
  - (c) 8 L urine is excreted per day
  - (d) The primary function of sweat is excretion
- 96. Liver (largest gland) is both secretory and excretory organ. It secretes bile. Which of the following are major excretory products of bile?(i) Deepended and extended between the secretory products of bile?
  - (a) Degraded and steroid hormones
  - (b) Vitamins and drugs
  - (c) Bilirubin and Biliverdin
  - (d) Cholesterol
- **97.** Most of excretory products of bile ultimately pass out along with-
  - (a) Urine (b) Digestive wastes
  - (c) Urea (d) Sweat

#### **98.**

- I. The human skin possesses sweat and sebaceous glands which eliminate some wastes in their secretion.
- II. Sweat is waxy protective secretion having sterols, hydrocarbons and fatty acid
- III. Sebum is an aqueous fluid having NaCl, lactic acid, urea, amino acids, glucose
- Which one of the above statement is correct?
- (a) Only I (b) II and III
- (c) Only II (d) I and II

## TopicDisorder of the Excretory9System

- **99.** In uremia, artificial kidney is used for removing accumulated waste products like urea by the process called-
  - (a) Micturition (b) Haemolysis
  - (c) Ureotelism (d) Hemodialysis

## **100.** In artificial kidney dialysing fluid contains all the constituents as in plasma expect-

- (a) Na<sup>+</sup>
- (b) Water
- (c) Glucose
- (d) Nitrogenous wastes
- 101. Kidney stone is produced by-
  - (a) Deposition of sand particles
  - (b) Crystallization of Ca- oxalate
  - (c) Precipitation of protein
  - (d) KCI or NaCl
- 102. Bright's disease/Glomerulonephritis is-
  - (a) Glycosuria
  - (b) Cystitis
  - (c) Inflammation of glomeruli
  - (d) Ketonuria

#### 103. Following are the steps of dialysis:

- A. Blood is passed into a vein.
- B. Blood is mixed with heparin.
- C. Blood is mixed with anti-heparin.
- D. Blood is drained from convenient artery.
- E. Blood is passed through a coiled and porous cellophane tube bathing in dialysis fluid.
- F. Removal of nitrogenous wastes from blood.
- The correct sequence of steps is-
- (a)  $A \rightarrow B \rightarrow C \rightarrow D \rightarrow E \rightarrow F$
- (b)  $F \to C \to E \to B \to A \to D$
- (c)  $D \to B \to E \to F \to C \to A$
- (d)  $D \to C \to E \to F \to B \to A$

ANSWER KEY										
1. (c)	2. (b)	3. (b)	4. (d)	5. (a)	6. (c)	7. (d)	8. (c)	9. (d)	10. (d)	
11. (b)	12. (d)	13. (b)	14. (d)	15. (a)	16. (c)	17. (c)	18. (a)	19. (a)	20. (c)	
21. (d)	22. (c)	23. (d)	24. (b)	25. (b)	26. (b)	27. (b)	28. (c)	29. (a)	30. (c)	
31. (d)	32. (a)	33. (a)	34. (d)	35. (a)	36. (c)	37. (a)	38. (a)	39. (c)	40. (a)	
41. (d)	42. (c)	43. (b)	44. (c)	45. (b)	46. (b)	47. (d)	48. (b)	49. (b)	50. (c)	
51. (c)	52. (a)	53. (d)	54. (b)	55. (d)	56. (a)	57. (d)	58. (b)	59. (d)	60. (d)	
61. (b)	62. (c)	63. (b)	64. (d)	65. (d)	66. (a)	67. (b)	68. (b)	69. (b)	70. (d)	
71. (c)	72. (d)	73. (d)	74. (d)	75. (b)	76. (c)	77. (a)	78. (d)	79. (d)	80. (d)	
81. (d)	82. (d)	83. (b)	84. (c)	85. (b)	86. (a)	87. (c)	88. (c)	89. (a)	90. (a)	
91. (b)	92. (b)	93. (d)	94. (b)	95. (c)	96. (c)	97. (b)	98. (a)	99. (d)	100. (d)	
101. (b)	102. (c)	103. (c)								