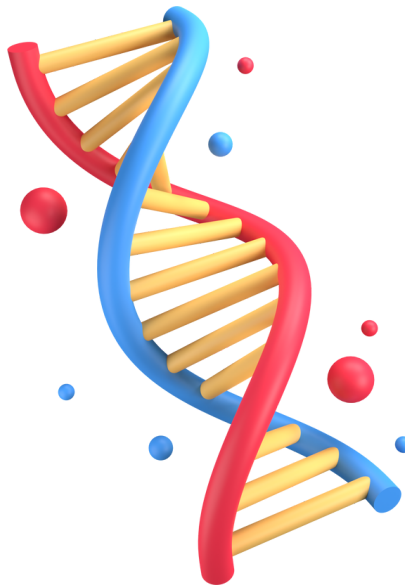


ZOOLOGY

ENTHUSIAST | LEADER | ACHIEVER



EXERCISE

Excretory products & their elimination

ENGLISH MEDIUM

EXERCISE-I (Conceptual Questions)

Build Up Your Understanding

EXCRETORY MATTER, KIDNEY, NEPHRON

1. The retroperitoneal kidney is -
 (1) Kidney of fish
 (2) Kidney covered by peritoneum on ventral side
 (3) Kidney covered by peritoneum on dorsal side
 (4) Kidney uncovered by peritoneum on ventral Side.
EE0001
2. Nitrogenous waste products are eliminated mainly as -
 (1) Urea in tadpole & ammonia in adult frog
 (2) Ammonia in tadpole and urea in adult frog
 (3) Urea in both tadpole & adult frog.
 (4) Urea in tadpole and uric acid in adult frog.
EE0003
3. Ammonia is the main nitrogenous excretory material in
 (1) Amphibians (2) Aves
 (3) Tadpoles (4) Reptiles
EE0005
4. The blood vessel taking blood towards Bowman's capsule is
 (1) Afferent arteriole
 (2) Efferent arteriole
 (3) Renal vein
 (4) Renal portal vein.
EE0006
5. Ornithine cycle is related to
 (1) Respiration (2) Excretion
 (3) Digestion (4) Nutrition
EE0007
6. Read the following statements about human excretory system and choose the correct option accordingly.
 I. Kidneys are reddish brown and bean-shaped structure.

- II. Kidneys are situated between the last thoracic to third lumbar vertebra.
- III. Each kidney of an adult human measures 10-12 cm in length, 5-7 cm in width, 2-3 cm thickness, and average weight 120-170 gram.
 (1) I and II (2) II and III
 (3) III and I (4) All
EE0238
7. Excretion is
 (1) Removal of substances required by body
 (2) Removal of useless substances and substances present in excess
 (3) Formation of substances having some role in body
 (4) 1 and 2 both
EE0009
8. In mammals the urinary bladder opens into
 (1) Uterus (2) Urethra
 (3) Vestibule (4) Ureter
EE0010
9. In humans, the kidney is
 (1) Metanephric
 (2) Mesonephric
 (3) Pronephric
 (4) Opisthonephric
EE0011
10. Urea is derived from
 (1) Fats (2) Amino acids
 (3) Carbohydrates (4) Uric acid
EE0012
11. Animals which excrete large amount of ammonia are
 (1) Terrestrial (2) Amphibians
 (3) Egg laying (4) Aquatic
EE0013
12. Ureotelic animals are those in which the main nitrogenous waste product is
 (1) Amino acids (2) Urea
 (3) Uric acid (4) Ammonia
EE0014

13. Excretory product of mammals is
 (1) Salts (2) Glucose
 (3) Urea (4) Ammonia

EE0015

14. Malpighian corpuscles occur in
 (1) Medulla (2) Cortex
 (3) Pelvis (4) Pyramid

EE0016

15. Brush border is characteristic of
 (1) Neck of nephron
 (2) Collecting tube
 (3) Proximal convoluted tubule
 (4) All the above

EE0017

16. In cockroach, the excretory product is
 (1) Ammonia (2) Uric acid
 (3) Urea (4) Both 1 and 3

EE0018

17. Ornithine cycle operates in
 (1) Stomach (2) Pancreas
 (3) Liver (4) Oral cavity

EE0019

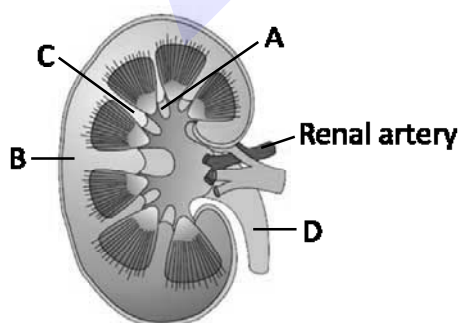
18. Ornithine cycle performs
 (1) ATP synthesis
 (2) Urea formation in spleen
 (3) Urea formation in liver
 (4) Urine formation in liver

EE0021

19. Uriniferous tubules occur in
 (1) Stomach (2) Testes
 (3) Ovary (4) Kidney

EE0022

20. Identify A to D in the given structure and choose the correct option accordingly.



- (1) A-Calyx, B-Cortex, C-Renal column, D-Ureter

- (2) A-Calyx, B-Cortex, C-Renal column, D-Urethra

- (3) A-Urethra, B-Cortex, C-Renal column, D-Calyx

- (4) A-Urethra, B-Calyx, C-Renal column, D-Cortex

EE0229

21. The two kidneys lie in man

- (1) At the level of ovaries

- (2) At the same level

- (3) Left kidney at a higher level than the right one

- (4) Right kidney at a higher level than the left one

EE0025

22. Vasa recta are tubular capillaries around

- (1) Posterior part of alimentary canal

- (2) PCT

- (3) Loop of Henle

- (4) DCT

EE0026

23. Diameter of the renal afferent vessel is

- (1) Same as that of efferent

- (2) Smaller than that of efferent

- (3) Larger than that of efferent

- (4) There is no efferent vessel

EE0028

24. Choose the mismatched part of nephron with their function.

- (1) Bowman's capsule-Glomerular filtration

- (2) PCT-Reabsorption of Na^+ and K^+

- (3) DCT-Reabsorption of glucose

- (4) Loop of Henle-Urine concentration

EE0230

25. A notch present on the medial side of kidney is known as

- (1) Ureter

- (2) Pelvis

- (3) Hilus

- (4) Pyramid

EE0031

26. Which is false
(1) Nephron-Excretion
(2) Alveoli-Respiration
(3) Kidney-osmoregulation
(4) None of these
EE0034
27. The snakes living in deserts are mainly
(1) Ammonotelic (2) Aminotelic
(3) Ureotelic (4) Uricotelic
EE0035
28. Which one is not the function of kidney?
(1) Osmoregulation
(2) Salt retention
(3) Excretion
(4) Synthesis of urea
EE0036
29. Ammonia is the chief excretory substance in
(1) Camel and whale
(2) Cartilaginous fishes
(3) Whale and Tortoise
(4) Fresh water fishes
EE0038
30. One of the following excrete urea
(1) Snakes (2) Birds
(3) Insects (4) Mammals
EE0039
31. Uric acid excretion is an adaptation for
(1) Water conservation (2) Water removal
(3) Osmoregulation (4) None
EE0040
32. NH_3 is
(1) Less toxic (2) Toxic
(3) Highly toxic (4) None
EE0041
33. Out of the four parts given below, which parts play significant role in forming concentrated urine in human ?
I. Loop of Henle II. Glomerulus
III. Bowman's capsule IV. Vasa recta
The correct option is
(1) I and II (2) III and IV
(3) II and III (4) I and IV
EE0232
34. Which is absent in Glomerular filtrate?
(1) Blood corpuscles (2) Fats
(3) Proteins (4) All
EE0045
35. Urine formed by nephrons is ultimately carried toA... where it is stored till a voluntary signal is given by the ...B... . This signal is initiated by ...C... of urinary bladder. Choose the correct option for A, B and C.
(1) A-Urethra, B-CNS, C-PNS
(2) A-Urinary bladder, B-CNS, C-stretching
(3) A-Urethra, B-CNS, C-Stretching
(4) A-Urethra, B-CNS, C-ANS
EE0233
36. Conversion of ammonia to urea is done by..... Cycle -
(1) Ornithine cycle (2) Arginine cycle
(3) Fumaric cycle (4) Citrulline cycle
EE0050
37. The movement of ions against the concentration gradient will be-
(1) Active transport (2) Osmosis
(3) Diffusion (4) All
EE0051
38. Correct order of excretory organs in Cockroach, Earthworm and Rabbit respectively :-
(1) Skin, malpighi tubules, kidney
(2) Malpighi tubules, nephridia, kidney
(3) Nephridia, malpighi tubules, kidney
(4) Nephridia, kidney, green gland
EE0052
39. Which one of the following body functions is not performed by kidneys?
(1) Excretion
(2) Osmoregulation
(3) Regulation of blood volume
(4) Destruction of dead blood corpuscles
EE0053
40. Nitrogen is excreted in mammals in the form of :-
(1) Ammonium ion (2) Ammonia
(3) Uric acid (4) Urea
EE0054

- 41.** Which one of the four parts mentioned below does not constitute a part of a single uriniferous tubule?
 (1) Bowman's capsule
 (2) Distal convoluted tubule
 (3) Loop of Henle
 (4) Collecting duct
EE0055
- 42.** Match the following :
 'A' 'B'
 A. Loop of Henle 1. Carries blood to the kidney
 B. Renal artery 2. Area where a considerable amount of reabsorption takes place
 C. Proximal convoluted tubule 3. Main area of K^+ , H^+ secretion
 D. Glomerulus 4. Filtration of blood
 E. Distal convoluted tubule 5. Plays a role in concentration of urine
 The correct pairing sequence is :
 (1) 5,1,2,4,3 (2) 5,1,2,3,4
 (3) 1,5,3,4,2 (4) 2, 1, 3, 5, 4
EE0057
- 43.** Which of the following is not a function of kidneys?
 (1) Regulation of blood pressure
 (2) Removal of urea
 (3) Regulation of acidity of fluids
 (4) Secretion of antibiotics
EE0058
- 44.** Aquatic reptiles are :
 (1) Ammonotelic
 (2) Ureotelic over land
 (3) Ureotelic
 (4) Ureotelic in water
EE0060
- 45.** During micturition :
 (1) Urethra relaxes
 (2) Ureter contracts
 (3) Ureter relaxes
 (4) Urethra contracts
EE0061
- 46.** Which of the following are uricotelic animals?
 (1) Rohu and Frog
 (2) Lizard and Crow
 (3) Camel and Frog
 (4) Earthworm and Eagle
EE0062
- 47.** Duct of Bellini opens on :
 (1) Collecting duct (2) Ureter
 (3) Renal papilla (4) DCT
EE0063
- 48.** Loop of Henle is associated with :-
 (1) Excretory system
 (2) Respiratory system
 (3) Reproductive system
 (4) Digestive system
EE0064
- 49.** Uric acid is the main excretory product in :-
 (1) Insects
 (2) Earthworm
 (3) Amphibians
 (4) Mammals
EE0066
- 50.** Which of the following is metabolic waste of protein metabolism?
 (1) NH_3 , urea and CO_2
 (2) Urea, oxygen and N_2
 (3) Urea, ammonia and alanine
 (4) Urea, ammonia and creatine
EE0067
- 51.** The most abundant, harmful and universal waste product of metabolism is:
 (1) CO_2 (2) Uric acid
 (3) H_2O (4) C_2H_5OH
EE0068
- 52.** Blood vessel leading into Bowman's capsule are called :-
 (1) Renal vein
 (2) Renal artery
 (3) Efferent arteriole
 (4) Afferent arteriole
EE0069

PHYSIOLOGY OF URINE FORMATION

- 53.** A man has taken large amount of protein in his diet. He will excrete more of
 (1) Urea (2) Uric acid
 (3) Sugar (4) Salts and water
EE0072
- 54.** Reabsorption of useful substances from glomerular filtrate occurs in
 (1) Collecting tube
 (2) Loop of Henle
 (3) Proximal convoluted tubule
 (4) Distal convoluted tubule
EE0073
- 55.** Occurrence of excess urea in blood due to kidney failure is
 (1) Urochrome (2) Uraemia
 (3) Uricotelism (4) Ureotelism
EE0074
- 56.** Total filtrate formed in 24 hours in human kidney is
 (1) 1.8 litres (2) 8.0 litres
 (3) 18 litres (4) 180 litres
EE0075
- 57.** In kidney glomerulus is involved in
 (1) Reabsorption of salts
 (2) Urine collection
 (3) Urine formation by blood filtration
 (4) Tubular secretion
EE0076
- 58.** The mechanism of urine formation in nephron involves
 (1) Ultrafiltration
 (2) Reproduction
 (3) Diffusion
 (4) Osmosis
EE0077
- 59.** Glucose is taken back from glomerular filtrate through
 (1) Active transport
 (2) Passive transport
 (3) Osmosis
 (4) Diffusion
EE0079
- 60.** Reabsorption of chloride ions from glomerular filtrate in kidney tubule occurs by -
 (1) Active transport
 (2) Diffusion
 (3) Osmosis
 (4) Brownian movement
EE0081
- 61.** Main functions of kidney is
 (1) Passive absorption
 (2) Ultrafiltration
 (3) Selective reabsorption
 (4) Both 2 and 3
EE0082
- 62.** The afferent arteriole diameter is more than efferent arteriole helps in :-
 (1) More blood flow to efferent arteriole
 (2) Creating lower pressure in glomerulus
 (3) Creating higher pressure in glomerulus
 (4) Tubular secretion
EE0087
- 63.** Which part of nephron is affected by aldosterone?
 (1) P.C.T.
 (2) Late part of C.T.
 (3) D.C.T.
 (4) Duct of Bellini
EE0088
- 64.** Concentration of urine depends upon which organ-
 (1) Bowman's capsule
 (2) Length of Henle's loop
 (3) P.C.T.
 (4) Network of capillaries arising from glomerulus
EE0089
- 65.** Which one does not filter out from blood to Bowman's capsule in glomerular ultrafiltration?
 (1) Amino acids (2) Polypeptide
 (3) Glucose (4) Fatty acids
EE0091

66. The net pressure gradient that causes the fluid to filter out of the glomeruli into the capsule is –
 (1) 10-25 mm Hg
 (2) 50-80 mm Hg
 (3) 80-100 mm Hg
 (4) 30-50 mm Hg
EE0092
67. Haemodialysis helps in the patient having :
 (1) Uremia (2) Anaemia
 (3) Diabetes (4) goitre
EE0093
68. Water reabsorption in the distal parts of kidney tubules is regulated by :
 (1) STH (2) TSH (3) ADH (4) MSH
EE0094
69. Due to insufficient filtration in the Bowman's capsule, all are likely to happen except :
 (1) Accumulation of fluid in the body
 (2) Increase in blood pressure
 (3) Increase in blood urea level
 (4) Loss of glucose through urine
EE0095
70. Urinary excretion of Na^+ is regulated by :
 (1) Anterior pituitary
 (2) Posterior pituitary
 (3) Adrenal cortex
 (4) Adrenal medulla
EE0096
71. In the kidney, the formation of urine involve the following processes arranged as
 (1) Glomerular filtration, reabsorption and tubular secretion
 (2) Reabsorption, filtration and secretion
 (3) Secretion, absorption and filtration
 (4) Filtration, secretion and reabsorption
EE0097
72. What for the ascending limb of Loop of Henle is permeable?
 (1) Glucose (2) NH_3
 (3) Na^+ (4) Water
EE0098
73. If ADH level of blood is less :-
 (1) Volume of urine increases
 (2) Volume of urine decreases
 (3) Volume of urine is normal
 (4) Volume of urine is unaffected
EE0100
74. Human urine as compared to human blood is normally :-
 (1) Hypotonic (2) Hypertonic
 (3) Isotonic (4) All of these
EE0101
75. Main function of glomerulus is :-
 (1) Filtration of blood
 (2) Reabsorption of H_2O
 (3) Reabsorption of Na^+
 (4) Concentration of urine
EE0102
76. Absorption of H_2O in DCT is controlled by :-
 (1) ADH (2) ACTH
 (3) Rennin (4) Oxytocin
EE0103
77. Glomerular hydrostatic pressure is present in :-
 (1) Tubule of kidney
 (2) Bowman's capsule
 (3) Glomerulus of uriniferous tubule
 (4) Malpighian tubule
EE0105
78. Absorption of Na^+ and K^+ ions does not occur in:-
 (1) Bowman's capsule
 (2) Loop of Henle
 (3) distal convoluted tubule
 (4) Proximal convoluted tubule
EE0106
79. Liquid which collects in the cavity of Bowman's Capsule is :-
 (1) Blood plasma minus blood proteins
 (2) Glycogen and water
 (3) Urea, glycogen and water
 (4) Urea
EE0107

80. Loop of Henle is primarily meant for absorption of :-

- (1) Potassium (2) Glucose
(3) Urea (4) Water

EE0108

81. Blood dialysis is called :

- (1) Artificial lung (2) Artificial kidney
(3) Artificial heart (4) Artificial brain

EE0109

82. The complete reabsorption of glucose takes place in :-

- (1) Collecting tubule
(2) Distal tubule
(3) Proximal convoluted tubule
(4) Henle loop

EE0110

REGULATION OF KIDNEY FUNCTION AND DISEASES

83. A condition of failure of kidney to form urine is called -

- (1) Creatinine (2) Hematuria
(3) Anuria (4) Ketonuria

EE0111

84. Diuresis is the condition in which

- (1) The excretion of volume of urine increases
(2) The excretion of volume of urine decreases
(3) The kidney fails to excrete urine
(4) The water balance of the body is disturbed.

EE0112

85. Which type of kidneys are found in amphibian?

- (1) Holonephric (2) Mesonephric
(3) Pronephric (4) Metanephric

EE0116

86. In diabetes insipidus the patient drinks more water as there is urinary loss of

- (1) Salt (2) Insulin
(3) Protein (4) Water

EE0117

87. Uremia is a disease when there is an excess of

- (1) Cholesterol in the blood
(2) Glucose in the blood
(3) Urea in the blood
(4) Urea in urine

EE0119

88. Ketonuria is

- (1) Albumin in urine
(2) Globulin in urine
(3) Ketone bodies in urine
(4) None of the above

EE0120

89. Characteristic smell of urine is due to :-

- (1) Urea
(2) Uric acid
(3) Urinod substance
(4) Pus

EE0121

90. Stimulation of voiding of urine occur in bladder at :-

- (1) 200 ml. (2) 220 ml.
(3) 300 ml. (4) 400 ml.

EE0122

91. Which substance is used mainly in kidney function test?

- (1) Glucose (2) Na⁺
(3) Inulin (4) Urea

EE0123

92. The appearance of albumin in the urine is most likely due to :

- (1) Increase in the blood pressure
(2) Decrease in the blood osmotic pressure
(3) Damage to the Malpighian corpuscles
(4) Damage to the proximal convoluted tubules

EE0125

93. Kidney crystals are solid clusters of :

- (1) Calcium nitrate and uric acid
(2) Phosphate and uric acid
(3) Calcium carbonate and uric acid
(4) Calcium metabisulphite and uric acid

EE0126

94. Diuresis is a specific pathological condition which leads to :

- (1) Increased volume of urine excretion
- (2) Decreased volume of urine excretion
- (3) Increased glucose excretion
- (4) Decreased electrolyte concentration

EE0128

95. Why do we pass more urine in wet and cold season ?

- (1) Impairment of water absorption by nephrons
- (2) Kidney becomes more active
- (3) Sweating is much decreased
- (4) ADH secretion is increased

EE0129

EXERCISE-I (Conceptual Questions)

ANSWER KEY

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

EXERCISE-II (Previous Year Questions)

AIPMT/NEET

AIPMT 2006

1. Angiotensinogen is a protein produced and secreted by –
- (1) Macula densa cells
 - (2) Endothelial cells (cells lining the blood vessels)
 - (3) Liver cells
 - (4) Juxtaglomerular (JG) cells

EE0130

AIPMT 2007

2. A person who is on a long hunger strike and is surviving only on water, will have :-
- (1) Less urea in his urine
 - (2) More sodium in his urine
 - (3) Less amino acids in his urine
 - (4) More glucose in his blood

EE0131

AIPMT 2008

3. Consider the following four statement (a–d) about certain desert animals such as kangaroo rat :-
- (a) They have dark colour and excrete solid urine
 - (b) They do not drink water, breathe at a slow rate to conserve water and have their body covered with thick hairs
 - (c) They feed on dry seeds and do not require drinking water
 - (d) They excrete very concentrated urine and do not use water to regulate body temperature

Which two of the above statements for such animals are **true** ?

- (1) c and a
- (2) a and b
- (3) c and d
- (4) b and c

EE0132

AIPMT 2009

4. Uric acid is the chief nitrogenous component of the excretory products of :-
- (1) Frog
 - (2) Man
 - (3) Earthworm
 - (4) Cockroach

EE0133

5. What will happen if the stretch receptors of the urinary bladder wall are totally removed ?
- (1) There will be no micturition
 - (2) Urine will not collect in the bladder
 - (3) Micturition will continue
 - (4) Urine will continue to collect normally in the bladder

EE0134

AIPMT-Pre 2010

6. Which one of the following statements in regard to the excretion by the human kidneys is *correct*?
- (1) Ascending limb of Loop of Henle is impermeable to electrolytes
 - (2) Descending limb of Loop of Henle is impermeable to water
 - (3) Distal convoluted tubule is incapable of reabsorbing HCO_3^- ;
 - (4) Nearly 99 per cent of the glomerular filtrate is reabsorbed by the renal tubules

EE0135

7. The principal nitrogenous excretory compound in humans is synthesised :
- (1) in the liver, but eliminated mostly through kidneys
 - (2) in kidneys but eliminated mostly through liver
 - (3) in kidneys as well as eliminated by kidneys
 - (4) in liver and also eliminated by the same through bile

EE0136

AIPMT-Pre 2011

8. Which one of the following is not a part of a renal pyramid ?
- (1) Peritubular capillaries
 - (2) Convoluted tubules
 - (3) Collecting ducts
 - (4) Loops of Henle

EE0137

9. Which one of the following correctly explains the function of a specific part of a human nephron?

- (1) *Podocytes* : Create minute spaces (slit pores) for the filtration of blood into the Bowman's capsule
- (2) *Henle's loop* : most reabsorption of the major substances from the glomerular filtrate
- (3) *Distal convoluted tubule* : reabsorption of K^+ ions into the surrounding blood capillaries
- (4) *Afferent arteriole* : carries the blood away from the glomerulus towards renal vein.

EE0138

10. Uricotelic mode of passing out nitrogenous wastes is found in :-

- (1) Reptiles and Birds
- (2) Birds and Annelids
- (3) Amphibians and Reptiles
- (4) Insects and Amphibians

EE0139

11. Which one of the following statements is correct with respect to kidney function regulation ?

- (1) When someone drinks lot of water, ADH release is suppressed.
- (2) Exposure to cold temperature stimulates ADH release.
- (3) An increase in glomerular blood flow stimulates formation of Angiotensin II.
- (4) During summer when body loses lot of water by evaporation, the release of ADH is suppressed.

EE0140

AIPMT-Pre 2012

12. The maximum amount of electrolytes and water (70 – 80 percent) from the glomerular filtrate is reabsorbed in which part of the nephron ?

- (1) Proximal convoluted tubule
- (2) Descending limb of loop of Henle
- (3) Ascending limb of loop of Henle
- (4) Distal convoluted tubule

EE0142

AIPMT-Mains 2012

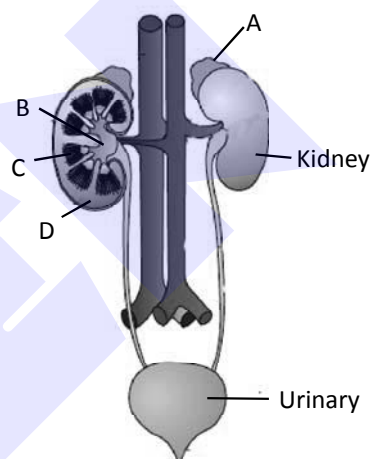
13. A fall in glomerular filtration rate (GFR) activates:

- (1) adrenal medulla to release adrenaline
- (2) posterior pituitary to release vasopressin
- (3) juxta glomerular cells to release renin
- (4) adrenal cortex to release aldosterone

EE0143

NEET-UG 2013

14. Figure shows human urinary system with structures labelled A to D. Select option which correctly identifies them and gives their characteristics and/or functions.



- (1) D-Cortex - outer part of kidney and do not contain any part of nephrons
- (2) A-Adrenal gland - located at the anterior part of kidney. Secrete Catecholamines which stimulate glycogen breakdown
- (3) B-Pelvis - broad funnel shaped space inner to hilum, directly connected to loops of Henle
- (4) C-Medulla-inner zone of kidney and contains complete nephrons

EE0144

AIPMT 2015

15. Removal of proximal convoluted tubule from the nephron will result in:

- (1) More concentrated urine
- (2) No change in quality and quantity of urine
- (3) No urine formation
- (4) More diluted urine

EE0147

Re-AIPMT 2015

16. Human urine is usually acidic because :
- (1) hydrogen ions are actively secreted into the filtrate.
 - (2) the sodium transporter exchanges one hydrogen ion for each sodium ion, in peritubular capillaries.
 - (3) excreted plasma proteins are acidic
 - (4) potassium and sodium exchange generates acidity

EE0148

NEET-I 2016

17. In mammals, which blood vessel would normally carry largest amount of urea ?
- (1) Renal Vein
 - (2) Dorsal Aorta
 - (3) Hepatic Vein
 - (4) Hepatic Portal Vein

EE0151

NEET-II 2016

18. The part of nephron involved in active reabsorption of sodium is :-
- (1) Bowman's capsule
 - (2) Descending limb of Henle's loop
 - (3) Distal convoluted tubule
 - (4) Proximal convoluted tubule

EE0152

NEET(UG) 2017

19. A decrease in blood pressure / volume will not cause the release of :
- (1) Atrial natriuretic factor
 - (2) Aldosterone
 - (3) ADH
 - (4) Renin
20. Which of the following statements is **correct** ?
- (1) The descending limb of loop of Henle is impermeable to water.
 - (2) The ascending limb of loop of Henle is permeable to water.
 - (3) The descending limb of loop of Henle is permeable to electrolytes.
 - (4) The ascending limb of loop of Henle is impermeable to water.

EE0154

EE0155

NEET(UG) 2018

21. Match the items given in Column I with those in Column II and select the **correct** option given below:

Column I	Column II
a. Glycosuria	i. Accumulation of uric acid in joints
b. Gout	ii. Mass of crystallised salts within the kidney
c. Renal calculi	iii. Inflammation in glomeruli
d. Glomerular nephritis	iv. Presence of glucose in urine
a	b
(1) iii	ii
(2) i	ii
(3) ii	iii
(4) iv	i
c	d
(1) iii	iv
(2) i	ii
(3) ii	iii
(4) iv	i

EE0157

22. Match the items given in Column I with those Column II and select the **correct** option given below:

Column I	Column II
(Function)	(Part of Excretory System)
a. Ultrafiltration	i. Henle's loop
b. Concentration of urine	ii. Ureter
c. Transport of urine	iii. Urinary bladder
d. Storage of urine corpuscle	iv. Malpighian corpuscle
a	b
(1) iv	v
(2) iv	i
(3) v	iv
(4) v	iv
c	d
(1) iv	ii
(2) iv	i
(3) v	iv
(4) v	iv
d	e
(1) iv	ii
(2) iv	i
(3) v	iv
(4) v	iv

v. Proximal convoluted tubule

EE0158

23. Uric acid is formed by :-

- (1) Phospholipids
- (2) DNA or RNA
- (3) Sphingolipids
- (4) Glycolipids

EE0159

NEET-Ug 2019

24. Which of the following factors is responsible for the formation of concentrated urine?

- (1) Low levels of antidiuretic hormone.
- (2) Maintaining hyperosmolarity towards inner medullary interstitium in the kidneys.
- (3) Secretion of erythropoietin by juxtaglomerular complex.
- (4) Hydrostatic pressure during glomerular filtration.

EE0234

25. Use of an artificial kidney during hemodialysis may result in :

- (a) Nitrogenous waste build-up in the body
- (b) Non-elimination of excess potassium ions
- (c) Reduced absorption of calcium ions from gastro-intestinal tract
- (d) Reduced RBC production

Which of the following options is the most appropriate?

- (1) (a) and (b) are correct
- (2) (b) and (c) are correct
- (3) (c) and (d) are correct
- (4) (a) and (d) are correct

EE0235

NEET-UG 2019 (Odisha)

26. Match the following parts of a nephron with their function:

- | | |
|-------------------------------------|---------------------------------|
| (a) Descending limb of Henle's loop | (i) Reabsorption of salts only |
| (b) Proximal Convoluted tubule | (ii) Reabsorption of water only |

- | | |
|------------------------------------|--|
| (c) Ascending limb of Henle's loop | (iii) Conditional reabsorption of sodium ion and water |
| (d) Distal convoluted tubule | (iv) Reabsorption of ion, water and organic nutrients. |

Select the correct option from the following :

- (1) (a)-(i), (b)-(iii), (c)-(ii), d-(iv)
- (2) (a)-(ii), (b)-(iv), (c)-(i), d-(iii)
- (3) (a)-(i), (b)-(iv), (c)-(ii), d-(iii)
- (4) (a)-(iv), (b)-(i), (c)-(iii), d-(ii)

EE0236

27. Match the items in Column-I with those in Column-II :

- | Column-I | Column-II |
|--------------------|---------------------------|
| (a) Podocytes | (i) Crystallised oxalates |
| (b) Protonephridia | (ii) Annelids |
| (c) Nephridia | (iii) Amphioxus |
| (d) Renal calculi | (iv) Filtration slits |

Select the correct option from the following :

- (1) (a)-(iii), (b)-(iv), (c)-(ii), d-(i)
- (2) (a)-(iii), (b)-(ii), (c)-(iv), d-(i)
- (3) (a)-(iv), (b)-(iii), (c)-(ii), d-(i)
- (4) (a)-(iv), (b)-(ii), (c)-(iii), d-(i)

EE0237

NEET(UG) 2020

28. Which of the following would help in prevention of diuresis ?

- (1) Decrease in secretion of renin by JG cells
- (2) More water reabsorption due to under secretion of ADH
- (3) Reabsorption of Na^+ and water from renal tubules due to aldosterone
- (4) Atrial natriuretic factor causes vasoconstriction

EE0239

NEET(UG) 2020 (COVID-19)

29. The increase in osmolarity from outer to inner medullary interstitium is maintained due to :

- (i) Close proximity between Henle's loop and vasa recta
- (ii) Counter current mechanism
- (iii) Selective secretion of HCO_3^- and hydrogen ions in PCT
- (iv) Higher blood pressure in glomerular capillaries
- (1) Only (ii)
- (2) (iii) and (iv)
- (3) (i), (ii) and (iii)
- (4) (i) and (ii)

EE0240

30. Select the correct statement :

- (1) Atrial Natriuretic Factor increases the blood pressure.
- (2) Angiotensin II is a powerful vasodilator.
- (3) Counter current pattern of blood flow is not observed in vasa recta.
- (4) Reduction in Glomerular Filtration Rate activates JG cells to release renin.

EE0241

NEET(UG) 2021

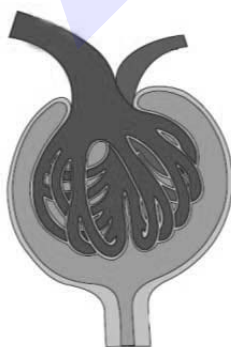
31. Erythropoietin hormone which stimulates R.B.C. formation is produced by :

- (1) Alpha cells of pancreas
- (2) The cells of rostral adenohypophysis
- (3) The cells of bone marrow
- (4) Juxtaglomerular cells of the kidney

EE0242

NEET(UG) 2021 (Paper-2)

32. Given figure represents



- (1) Glomerulus
- (2) Bowman's capsule
- (3) Malpighian body
- (4) Renal capsule

EE0243

33. Choose the wrong statement regarding urine formation.

- (1) Henle's loop plays an important role in concentration of urine.
- (2) Protein-free fluid is filtered from blood plasma into the Bowman's capsule.
- (3) ADH helps in water elimination, making the urine hypotonic.
- (4) Filtration is a non-selective process performed by glomerulus

EE0244

NEET(UG) 2022

34. Nitrogenous waste is excreted in the form of pellet or paste by :

- (1) *Salamandra*
- (2) *Hippocampus*
- (3) *Pavo*
- (4) *Ornithorhynchus*

EE0245

NEET(UG) 2022 (OVERSEAS)

35. Terrestrial adaptations necessitated the production of :

- (1) Lesser toxic nitrogenous wastes like urea and uric acid
- (2) Lesser toxic nitrogenous wastes like ammonia and urea
- (3) Highly toxic nitrogenous wastes like ammonia and urea
- (4) Highly toxic nitrogenous wastes like urea and uric acid

EE0246

Re-NEET(UG) 2022

36. Select the **correct** statements.

- (a) Angiotensin II activates the cortex of adrenal gland to release aldosterone.
 (b) Aldosterone leads to increase in blood pressure.
 (c) ANF acts as a check on renin-angiotensin mechanism.
 (d) ADH causes vasodilation.
 (e) Vasopressin is released from adenohypophysis.

Choose **the most appropriate answer** from the options given below :

- (1) (a), (b) and (e) only
 (2) (c), (d) and (e) only
 (3) (b), (c) and (d) only
 (4) (a), (b) and (c) only

EE0247

EXERCISE-II (Previous Year Questions)

ANSWER KEY

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	3	1	4	4	1	4	1	2	1	1	1	1	3	2	4
Que.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Ans.	1	3	4	1	4	4	2	2	2	3	2	3	3	4	4
Que.	31	32	33	34	35	36									
Ans.	4	3	3	3	1	4									

EXERCISE-III

Master Your Understanding

EXERCISE-III(A) (NCERT BASED QUESTIONS)

1. Ureter, blood vessels and nerves enter in to the kidney through :-
(1) Pelvis (2) Hilum
(3) Convex surface (4) Pyramids

EE0160

2. Excretory organ in prawn is
(1) Green gland
(2) Malpighian tubules
(3) Kidney
(4) Nephridia

EE0161

3. Which of the following condition can activate the JG cells to release renin?
(1) More Na^+ in blood plasma
(2) More blood volume
(3) High glomerular blood pressure
(4) Fall in GFR

EE0162

4. Match the following :-

Column-I Column-II

- | | |
|-------------------|--|
| A PCT | (i) Selective secretion of H^+ and K^+ ions. |
| B DCT | (ii) 70-80 percent of electrolytes and water reabsorbed |
| C Descending limb | (iii) Allow passage of small amount of urea. |
| D Ascending limb | (iv) Permeable to water |
| E Collecting duct | (v) Permeable to salts |
- (1) A-(i), B-(ii), C-(iii), D-(iv), E-(v)
(2) A-(i), B-(iii), C-(iv), D-(ii), E-(v)
(3) A-(ii), B-(i), C-(iv), D-(v), E-(iii)
(4) A-(ii), B-(i), C-(v), D-(iv), E-(iii)

EE0163

5. Which of the following part of Nephron is situated in the cortex of kidney ?
(1) Malpighian Corpuscles
(2) PCT
(3) DCT
(4) All the above

EE0164

6. Kidney stone is formed of :-
(1) Cholesterol (2) Calcium oxalate
(3) Urea (4) MgPO_4

EE0165

7. The Glomerular capillary blood pressure causes filtration of blood through ?
(1) Endothelium of glomerular blood vessels
(2) The Epithelium of Bowman's capsule
(3) Basement membrane between these two layers
(4) All the above

EE0166

8. Which of the following substances are absorbed by passive transport ?
(1) Glucose (2) Amino acids
(3) Na^+ (4) Bicarbonate ions

EE0167

9. Which of the following play a significant role in the maintenance of high osmolarity of medulla interstitial fluid ?
(1) NH_4^+ (2) DCT
(3) PCT (4) NaCl and urea

EE0168

10. Maximum reabsorption of Na^+ and water takes place in which segment of Nephron ?
(1) PCT (2) Loop of Henle
(3) Bowman's capsule (4) DCT

EE0169

11. Which of the following hormone causes vaso-constriction?
(1) ANF (2) Aldosterone
(3) ADH (4) ACTH

EE0170

12. Excretion of Na^+ in urine is elevated by :-
(1) ANF (2) ADH
(3) ACTH (4) Aldosterone

EE0171

13. The presence of ketone bodies in urine are indicative of ?
(1) Diabetes insipidus
(2) Diabetes mellitus
(3) Starvation
(4) Both 2 and 3

EE0172

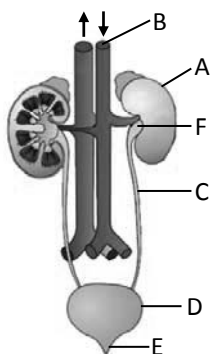
14. Which of nitrogenous waste is eliminated through saliva?
 (1) Urea (2) Creatine
 (3) HCO_3^- (4) Uric acid

EE0173

15. Which of the following condition arises due to kidney failure ?
 (1) Pyouria (2) Ketonuria
 (3) Uremia (4) Polyurea

EE0174

16. In the diagram of excretory system of human beings given below, different parts have been indicated by alphabets choose the answer in which these alphabets have been correctly matched with the parts which they represent –



- (1) A = Kidney, B = Abdominal aorta, C = Ureters, D = Urinary bladder, E = Urethra, F = Renal pelvis
 (2) A = Kidney, B = Abdominal aorta, C = Urethra, D = Urinary bladder, E = Ureters, F = Renal pelvis
 (3) A = Kidney, B = Renal pelvis, C = Urethra, D = Urinary bladder, E = Ureters, F = Renal pelvis
 (4) A = Kidney, B = Abdominal aorta, C = Urethra, D = Urinary bladder, E = Renal pelvis, F = Ureters

EE0175

17. Each kidney of an adult human measures :-

	Length	Width	Thickness	Weight
1.	10-12cm	5-7cm	2-3 cm	120-170 gm
2.	10-20 cm	10-12cm	6-12 cm	40-50 gm
3.	2-6 cm	10-12 cm	6-12 cm	40-50 gm
4.	10-20 mm	5-7 mm	2-3 cm	120-170 mg

EE0176

18. Medial surface of kidney are _____ while lateral surface is _____ :-

- (1) convex, concave
 (2) concave, convex
 (3) convex, convex
 (4) concave, concave

EE0177

EXERCISE-III(B) (ANALYTICAL QUESTIONS)

19. How many of the following chordates have flame cells as excretory organ.

Planaria, Ascaris, Amphioxus, Tapeworm, Nereis, Scoliodon.

- (1) One (2) Two
 (3) Three (4) Four

EE0178

20. Read statements A-D :-

- (A) When some one drinks lot of water, ADH release is decreased.
 (B) Exposure to cold temperature suppress ADH release
 (C) Caffeine in Tea and coffee increase sodium absorption from DCT and collecting ducts
 (D) ADH also cause vasodilation
 Which statements are correct

- (1) A and C
 (2) A and B
 (3) C and D
 (4) B and D

EE0179

21. The human kidney :-

- (1) Concentrates the urine by actively transporting water out of the filtrate.
 (2) Produces more dilute urine when the collecting ducts become less permeable to water.
 (3) Responds to antidiuretic hormone by increasing urine output.
 (4) Gets rid of urea from the body by secreting it into the descending arm of the loop of Henle.

EE0180

22. Layers between the glomerulus and Bowman's capsule through which the filtration takes place are
- endothelium of the glomerular blood vessel.
 - middle lamella.
 - basement membrane between the endothelium of glomerular blood vessels and epithelium of the Bowman's capsule.
 - epithelium of the Bowman's capsule.
- I, II and III
 - II, III and IV
 - I, III and IV
 - I, II and IV

EE0238

23. Large amount of water isA... from collecting duct to produce ...B... urine. This segment allows passage of small amounts of ...C... into interstitium of medulla to keep up the osmolarity. Here, A, B and C refers to
- A- secreted, B-dilute, C-sugar
 - A- secreted, B-dilute, C-NH₃
 - A- secreted, B-dilute, C-urea
 - A- reabsorbed, B-concentrated, C-urea

EE0239

24. Suppose you are developing a new drug, and have found that when it is administered in humans there is a substantial increase in the volume of urine produced. When you administer antidiuretic hormone (ADH or vasopressin) at the same time, the volume of urine returns to normal. Which hypothesis best fits these observations? The new drug?
- Blocks the receptors for ADH on the collecting of the kidney.
 - Blocks the release of ADH from the pituitary
 - Mimics the action of ADH
 - Decreases blood pressure

EE0183

25. In a comparison of amounts of urea in human urine, the largest amount of urea would be found with a diet very rich in :-
- Animal fat
 - Simple carbohydrates (sucrose)
 - Complex carbohydrates (starches)
 - Protein

EE0184

26. Identify the correct match from the column I, II and III:-

Column I	Column II	Column III
(1) PCT	(a) podocytes	(i) small amount of urea enter into it
(2) Inner wall of Bowmans capsule	(b) simple squamous	(ii) conditional reabsorption
(3) Thin ascending segment of loop of Henle	(c) cuboidal epithelium with less brush border	(iii) part of filtration membrane
(4) DCT	(d) cuboidal epithelium with more brush border	(iv) maximum reabsorption of salt and electrolytes

- 1 – c – iv; 2 – a – iii; 3 – b – i; 4 – d – ii
- 1 – d – iv; 2 – a – iii; 3 – b – i; 4 – c – ii
- 1 – b – iv; 2 – a – iii; 3 – d – i; 4 – c – ii
- 1 – d – iv; 2 – a – iii; 3 – b – ii; 4 – c – i

EE0185

27. During hemodialysis process
- blood drained from a convenient artery and anticoagulant is added (heparin).
 - removal of nitrogenous waste from blood.
 - blood is passed through a coiled porous cellophane membrane of tube bathing in dialysis fluid.
 - blood is mixed with anti heparin and passed into vein.

Arrange the steps

- I → II → III → IV
- IV → III → II → I
- I → III → II → IV
- I → IV → II → III

EE0186

- 28.** Which of the following statement is/are true ?
 I. Glomerular filtrate is isotonic to plasma.
 II. When the urine passes into collecting tubule, it becomes hypotonic.
 III. Filtrate is isotonic in proximal convoluted tubule.
 IV. Filtrate becomes more and more hypotonic as it passes through descending limb of Henle's loop.
 Choose the correct option :-
 (1) I and III (2) I, II and III
 (3) II and III (4) Only II
EE0187
- 29.** Which of the following features activates the JG cells?
 I. Fall in Glomerular blood pressure
 II. Fall in Glomerular blood flow
 III. Fall in GFR
 Choose the correct option
 (1) I and II (2) II and III
 (3) I and III (4) I, II and III
EE0188
- 30.** Which of the following is responsible for excretion of dilute urine ?
 (1) More secretion of Renin
 (2) Less secretion of vasopressin
 (3) More secretion of aldosterone
 (4) Less secretion of K^+ into the filtrate
EE0189
- 31.** When a person is suffering from poor renal absorption which one of the following factor will not help in maintenance of blood volume ?
 (1) Decreased glomerular filtration
 (2) Increased ADH secretion
 (3) Decreased arterial pressure in kidney
 (4) Increased arterial pressure in kidney
EE0190
- 32.** In response to decrease in blood volume and blood pressure which of the following does not occur?
 (1) Secretion of Renin
 (2) Secretion of aldosterone
 (3) Secretion of vasopressin
 (4) Secretion of ANF
EE0191
- 33.** Parasympathetic activity during micturition causes:-
 (1) Contraction of detrusor muscle and contraction of internal urethral sphincter
 (2) Contraction of detrusor muscle and relaxation of internal urethral sphincter
 (3) Relaxation of detrusor muscle and relaxation of internal urethral sphincter
 (4) Relaxation of detrusor muscle and contraction of Internal urethral sphincter
EE0192
- 34.** Read the following points :-
 (i) Increases GFR
 (ii) Increases B.P.
 (iii) Decreases blood volume
 (iv) Increases aldosterone secretion
 (v) Vasoconstrictor
 (vi) Increases Na^+ excretion
 How many points are correct about Angiotensin II?
 (1) Two (2) Three (3) Four (4) Five
EE0193
- 35.** The amount of glucose present in urine of normal man is :-
 (1) 0 mg/ml (2) 120 mg/ml
 (3) 40 mg/ml (4) 5 mg/ml
EE0194
- 36.** You and your study partner want to draw the pathway that controls the reabsorption of sodium ion when blood pressure falls. Which of the following is the correct sequence of events?
 (a) Aldosterone is released
 (b) Kidney tubules reabsorb Na^+
 (c) Renin is released
 (d) Juxtaglomerular apparatus (JGA) recognizes a drop in blood pressure.
 (e) Angiotensin II is produced
 (1) a, c, e, b, d (2) d, b, c, a, e
 (3) d, c, e, a, b (4) b, d, c, a, e
EE0195

37. Select the correct order of osmolarity changes in filtrate w.r.t. plasma in :-
Bowman's capsule → PCT → Thin part of descending limb of loop of Henle → Thin part of ascending limb of loop of Henle → DCT → End of collecting duct
- (1) Isotonic → Isotonic → Hypotonic → Hypertonic → Hypotonic → Hypotonic
(2) Isotonic → Isotonic → Hypertonic → Hypertonic → Hypotonic → Hypertonic
(3) Isotonic → Hypertonic → Isotonic → Hypertonic → Hypotonic → Hypertonic
(4) Hypotonic → Isotonic → Hypertonic → Isotonic → Hypotonic → Hypertonic

EE0196

38. Which of the following statements are not incorrect?
- (i) Liver, the largest gland in our body secretes cholesterol, degrade steroid hormones, vitamins and drugs
(ii) Sebaceous glands eliminate certain substances like urea, sterols and sebum
(iii) Sweat produced by sweat glands is a oily fluid containing NaCl
(iv) In uremic patients urea and glucose can be removed by a process called hemodialysis
- (1) i, ii, iii (2) i, ii, iv
(3) i only (4) i, ii, iv

EE0197

39. I. ADH
II. Renin-angiotensin
III. ANF
IV. Counter-current mechanism
Choose the option containing factors, which regulates the osmoregulation of body fluids ?

- (1) I, II and III (2) II, III and IV
(3) I, II and IV (4) All of the above

EE0240

40. An increase in the body fluid volume can switch off the ...A... and ...B... the ADH release. In this way complete the ...C... .
Choose the correct option for A, B and C.

- (1) A-osmoreceptors, B-increase, C-feedback
(2) A-osmoreceptors, B-suppress, C-feedback
(3) A-kidney filtration, B-increase, C-feedback
(4) A-kidney filtration, B-suppress, C-feedback

EE0241

EXERCISE-III

ANSWER KEY

Que.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Ans.	2	1	4	3	4	2	4	4	4	1	3	1	4	1	3
Que.	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Ans.	1	1	2	1	2	2	3	4	2	4	2	3	1	4	2
Que.	31	32	33	34	35	36	37	38	39	40					
Ans.	4	4	2	3	1	3	2	3	4	2					