Exercise-1

✍ **Marked Questions are for Revision Questions.**

ONLY ONE OPTION CORRECT TYPE

SECTION - A # HOMEOSTASIS AND OSMOREGULATION

1. Fresh water bony fishes maintain water balance by
(1) Excreting a hypotonic urine (2) Excreting salt across their gills
(3) Drinking small amount of water (4) Excreting wastes in the form of uric acid

2.✍ Which one of the following statements is correct with respect to salt water balance inside the body of living organisms
(1) When water is not available camels do not produce urine but store urea in tissues
(2) Salmon fish excretes lot of stored salt through gill membrane when in fresh water
(3) Paramecium discharges concentrated salt solution by contractile vacuoles
(4) The body fluids of fresh water animals are generally hypotonic to surrounding water

3. A terrestrial animal must be able to
(1) Actively pump salts out through the skin (2) Excrete large amounts of salts in urine
(3) Excrete large amounts of water in urine (4) Conserve water

4. Other function performed by kidney apart from excretion is
(1) Osmoregulation (2) Temperature regulation
(3) Hormonal regulation (4) Spermatogenesis

5. The animals which do not actively control the osmotic condition of their body fluids are
(1) Osmoconformers (2) Osmoregulator (3) Euryhaline (4) Stenohaline

6. Body fluids of shark can be termed as
(1) hypotonic to sea water (2) hypertonic to sea water
(3) Isotonic to sea water (4) None of these

7.✍ A fresh water fish maintains osmoregulation by
(1) Continuously taking in water and eliminating excess of salts
(2) Eliminating excess of water and taking up salts from the environment
(3) Taking both water and salt from the environment
(4) Eliminating both salt and water into the environment

SECTION - B # EXCRETORY WASTE PRODUCTS

1. Excretory waste of birds and reptiles are
(1) Urea (2) Urea and uric acid
(3) Uric acid (4) Ammonia and uric acid

2. Animal which excrete urea produced during metabolism of amino acids is
(1) Ureotelism (2) Uricotelism (3) Ammonotelism (4) Aminotelism

3. The most abundant, harmful and universal waste product of metabolism is
(1) CO_2 (2) Uric acid (3) H_2O (4) None of these

4. The main nitrogenous waste of Hydra is

(1) Ammonia only (2) Urea only (3) Uric acid only (4) Both (1) and (3)

5. Waste products of adenine and guanine metabolism are excreted by man as
(1) Ammonia (2) Urea (3) Uric acid (4) Allantois

6. A man takes large amount of protein. He is likely to excrete
(1) Water (2) Glucose (3) Urea and uric acid (4) Salts

7. Which of the following nitrogenous substance is highly toxic
(1) Urea (2) Uric acid (3) Amino acid (4) Ammonia

8. The chief nitrogenous waste in urine of rabbit or terrestrial mammals is
(1) Urea (2) Uric acid (3) Ammonia (4) None

9. Two examples in which the nitrogenous wastes are excreted from body in the form of uric acid are
(1) Birds and lizards (2) Mammals and mollusc
(3) Insects and bony fishes (4) Frogs and cartilagenous fishes

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

11. Reptiles are
(1) Ammonotelic (2) Uricotelic
(3) Ureotelic in water and uricotelic on land (4) ureotelic

12. Which of the following are uricotelic animals
(1) Rohu and frog (2) Lizard and crow (3) Camel and frog (4) Earthworm and eagle

13. Uricotelism is found in
(1) Birds, reptiles and insects (2) Frogs and toads
(3) Mammals and birds (4) Fishes and fresh water protozoans

SECTION - C # EXCRETORY ORGANS OF DIFFERENT ORGANISM

1. Malpighian tubules remove excretory products from
(1) Haemolymph (2) Alimentary canal (3) Both (1) and (2) (4) None of these

2. One of the following does the same work as is done by nephridia in earthworm
(1) Flame cells in liverfluke (2) Myotomes in fish
(3) Statocysts in prawn (4) Parotid gland in toad

3. Correct order of excretory organs in Cockroach, Earthworm and Rabbit respectively
(1) Skin, malpighi tubules, kidney
(2) Malpighi tubules, nephridia, kidney
(3) Nephridia, malpighi tubule, kidney
(4) Nephridia, kidney, green gland

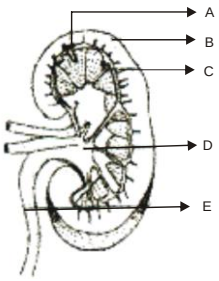
4. Green glands, present in some arthropods, help in
(1) Respiration (2) Excretion (3) Digestion (4) Reproduction

SECTION - D # HUMAN EXCRETORY SYSTEM

1. Which one of the following blood vessels in mammals would normally carry the largest amount of urea

(1) Hepatic portal vein (2) Hepatic vein (3) Renal artery (4) Hepatic artery

2.# Refer the following diagram and identify the parts of a kidney indicated



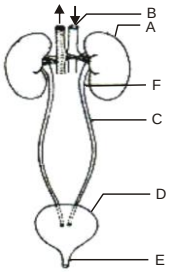
(1) A=cortex, B=nephron, C=pelvis, D=medulla, E=ureter

(2) A=cortex, B=medulla, C=nephron, D=pelvis, E=ureter

(3) A=nephron, B=cortex, C=medulla, D=ureter, E=pelvis

(4) A=nephron, B=cortex, C=medulla, D=pelvis, E=ureter

3.# 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 = Abdominal aorta

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

SECTION - E # URINIFEROUS TUBULE / NEPHRONS

1. In mammalian kidney Henle's loop is present in

(1) Cortex (2) Caput epididymus (3) Medulla (4) Ureter

2. The vessel leading blood (containing nitrogenous waste) into the Bowman's capsule is known as

(1) Afferent arteriole (2) Efferent arteriole (3) Renal artery (4) Renal vein

3. All Bowman's capsules of the kidney are found in

(1) Cortex (2) Medulla (3) Pelvis (4) None of these

4. Podocytes are the cells present in

(1) Bowman's capsule (2) Loop of Henle (3) Duct of Bellini (4) Distal convoluted tubule

5. Loop of Henle is meant for absorption of

(1) Potassium (2) Glucose (3) Water (4) CO_2

6. If Henle's loop were absent from mammalian nephron, which of the following is to be expected
(1) The urine will be more dilute
(2) There will be no urine formation
(3) There will be hardly any change in the quality and quantity of urine formed
(4) The urine will be more concentrated

7. The portion of nephron which is relatively impermeable to water is
(1) Collecting tubule (2) Ascending limb of loop of henle
(3) Distal tubule (4) Loop of Henle

8. The basic functional and structural unit of human kidney is
(1) Nephron (2) Pyramid (3) Nephridia (4) Henle's loop

SECTION - F # UREA FORMATION / ORNITHINE CYCLE

1. Which of the following cycles in liver is mainly responsible for the synthesis of urea
(1) Citruline cycle (2) Krebs cycle (3) Nitrogen cycle (4) Ornithine cycle

2. At which stage of ornithine cycle arginase is used
(1) Arginine - Ornithine (2) Ornithine - Citruline
(3) Fumaric acid - Arginine (4) Glycolysis - Urea

3. Which one of the following pair of waste substances is removed from blood in ornithine cycle
(1) CO_2 and urea (2) Ammonia and urea (3) CO_2 and ammonia (4) Urea and sodium salt

4. Ornithine an amino acid is found
(1) As an intermediate of urea synthesis
(2) As an intermediate of methonine metabolism
(3) As a major fraction of the connective tissue
(4) In bile salts

5. Ornithine cycle is related to
(1) Respiration (2) Nutrition (3) Excretion (4) Digestion

6. Transamination process takes place in
(1) Liver (2) Kidney (3) Heart (4) All the above

7. The end product of ornithine cycle is
(1) Urea (2) Ammonia (3) Uric acid (4) Carbon dioxide

8. In ureotelic animals, urea is formed by
(1) Ornithine cycle (2) Cori cycle (3) Krebs cycle (4) EMP pathway

SECTION - G # URINE FORMATION

1. The liquid which is collected in the cavity of Bowman's capsule is
(1) Concentrated urine (2) Blood plasma minus blood proteins
(3) Glycogen and water (4) Sulphates and water

2. What causes the liquid part of the blood to filter out from the glomerulus into the renal tubule
(1) Osmosis (2) High (hydrostatic) pressure
(3) Diapedesis (4) Dialysis

3. Which one of the following substances is actively secreted into the glomerular filtrate of the kidney tubule
(1) Potassium ions (2) Amino acids (3) Sodium ions (4) Chloride ions

4. In the kidney, glucose is mainly absorbed in
(1) Loop of Henle (2) Proximal convoluted tubules
(3) Distal convoluted tubules (4) Bowman's capsule

5. 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

6. The net pressure gradient that causes the fluid to filter out of the glomeruli into the capsule is
(1) 50 mm Hg (2) 75 mm Hg (3) 10 mm Hg (4) 30 mm Hg

7. Glomerular hydrostatic pressure is present in
(1) Tubule of kidney (2) Bowman's capsule
(3) Glomerulus of uriniferous tubule (4) Malpighian tubule

8. Filtration pressure in human kidneys is about
(1) + 15mm Hg (2) + 70mm Hg (3) + 45mm Hg (4) + 55 mm Hg

9. Ultrafiltration takes place in
(1) Blood capillaries (2) Tissue fluid (3) Glomerulus (4) Urinary bladder

10. Maximum reabsorption of useful substances back into the blood from the filtrate in a nephron occurs in
(1) Proximal convoluted tubule (2) Loop of Henle
(3) Distal convoluted tubule (4) Collecting duct

11. Filtration fraction is the ratio of
(1) O_2 and CO_2 (2) HCO_3 and H_2CO_3 (3) GFR and RPF (4) Hb and HbO_2

12. Separation of amino acid into amino and carboxyl group is known as
(1) Deamination (2) Excretion (3) Amination (4) Egestion

13. The glomerular filtrate contains
(1) Blood minus cells and proteins (2) Blood minus cells
(3) Blood minus proteins (4) Plasma minus cells and proteins

14. Reabsorption of glucose from the glomerular filtrate in the kidney tubule is carried out by
(1) Active transport (2) Osmosis (3) Brownian movement (4) Diffusion

15. The glomerular filtration rate in a normal adult is nearly
(1) 200ml/minute (2) 250ml/minute (3) 125ml/minute (4)170ml/minute

16. Sodium, water and phosphate reabsorption is maximum in
(1) Loop of Henle (2) Proximal tubule (3) Distal tubule (4) Collecting tubule

17. The substance which is completely reabsorbed from the filtrate in the renal tubule under normal conditions is
(1) Urea (2) Salt (3) Glucose (4) Water

18. Protein rich diet brings about relatively no change in one of the following constituents of urine
(1) Urea (2) Creatinine (3) Uric acid (4) Ammonium salts

SECTION - H # REGULATION OF KIDNEY FUNCTION

1. When a person is suffering from poor renal reabsorption then which of the following will further decrease blood volume
(1) Decreased glomerular filtration (2) Increased ADH secretion
(3) Decreased arterial pressure in kidney (4) Increased arterial pressure in kidney

2. Volume of urine is regulated by
(1) Aldosterone (2) Aldosterone, ADH and testosterone
(3) Aldosterone and ADH (4) ADH alone

3. Water reabsorption in the distal parts of kidney tubules is regulated by
(1) STH (2) TSH (3) ADH (4) MSH

SECTION - I # MICTURITION

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

2. The yellow colour of urine of the vertebrates is due to
(1) Cholesterol (2) Urochrome (3) Uric acid (4) Melanin

SECTION - J # ROLE OF OTHER ORGAN IN EXCRETION

1. Stool of a person contains whitish grey colour due to malfunction of
(1) Liver (2) Spleen (3) Kidney (4) Pancreas

SECTION - K # DISEASE RELATED WITH KIDNEY

1. Which of these is not a ketone body
(1) Acetoacetic acid (2) Acetone
(3) Succinic acid (4) Betahydroxy butyric acid

2. 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

3. 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

4. A kidney stone is
(1) Blockage by fats (2) Deposition of sand in kidney
(3) A salt such as oxalate crystallised in pelvis (4) Blockage by proteins

5. Presence of RBC in urine is known as

(1) Proteinuria (2) Alkaptonuria (3) Haematuria (4) Uraethiasis

MISCELLANEOUS QUESTIONS

1. Excretory system of housefly consists of:
(1) Flame cells (2) Keber's organ
(3) Nephridia (4) Malpighian tubules

2. Antidiuretic hormone (ADH):
(1) Increases water reabsorption (2) Increases water release
(3) Increases Na^+ reabsorption (4) Decreases urea synthesis

3. Functional unit in a kidney is:
(1) Nephron (2) Nephritis (3) Neuron (4) Loop of Henle

4. An accessory excretory organ is:
(1) Heart (2) Stomach (3) Liver (4) Spleen

5. Presence of blood in urine is:
(1) Glycosuria (2) Haematuria (3) Oligourea (4) Anuria

6. Hippuric acid, creatinine and ketones are added to urine by:
(1) Glomerular filtration (2) Tubular secretion
(3) Reabsorption (4) Both 1 and 2

7. One of these animals is ammoniotelic:
(1) Rat (2) Whale (3) Teleosts (4) Shark

8. The part of the nephron that helps in active reabsorption of sodium is:
(1) Bowman's capsule (2) Distal convoluted tubule
(3) Ascending limb of Henle's loop (4) Proximal convoluted tubules

9. Minimum concentration of nitrogenous waste is present in:
(1) Renal vein (2) Renal artery (3) Hepatic vein (4) Renal portal vein

10. What amount of blood passes from kidney per minute?
(1) 1300 ml (2) 1500 ml (3) 1800 ml (4) 2000 ml

11. Urinary bladder can store what amount of urine:
(1) 250-700 ml (2) 750-1000 ml (3) 150-300 ml (4) 1000-1500 ml

12. Excretion of nitrogenous waste product in semisolid form occur in:
(1) Ureotelic animals (2) Ammonotelic animals
(3) Uricotelic animals (4) Amniotes

13. Kidney stones are :
(1) Crystals of sodium chloride (2) Crystals of silica
(3) Crystal of calcium oxalate (4) Crystal of potassium chloride

14. Reptiles are:
(1) Ammonotelic (2) Uricotelic

(3) Ammonotelic in water and uricotelic on land (4) ureotelic

15. The excretory system of prawn is called:
(1) Malpighian tubules (2) Nephridia (3) Solenocytes (4) Green glands

16. An X-ray of lower abdomen shows a shadow in the region of the ureter suspected to be a uretelic calculus, a possible clinical symptom would be :
(1) Active renal failure (2) Oliguria and haematuria
(3) Motor aphasia (4) Chronic renal failure (CRF)

17. Haemodialysis is done in the condition when person is suffering from:
(1) Diabetes (2) Uremia (3) Anaemia (4) Goitre

18. In the nephron of rabbit, reabsorption of glucose occurs in:
(1) distal convoluted tubule (2) proximal convoluted tubule
(3) ascending limb of Henle's loop (4) descending limb of Henle's loop

19. The glomerular filtrate i.e., the liquid collected in the cavity of Bowman's capsule is:
(1) Blood minus proteins (2) Blood minus proteins and corpuscles
(3) Water (4) Urine

20. Seagulls excrete excess of NaCl from:
(1) liver (2) lungs (3) nasal cavity (4) kidney

21. Podocytes are the cells present in:
(1) cortex of nephron (2) inner wall of Bowman's capsule
(3) outer wall of Bowman's capsule (4) wall of glomerular capillaries

22. Which of the following is concerned with the formation of urea in rabbit:
(1) blood (2) kidney (3) spleen (4) liver

23. Green glands, present in some arthropods, help in:
(1) respiration (2) excretion (3) digestion (4) reproduction

24. Loop of Henle is found in:
(1) lung (2) liver (3) neuron (4) nephron

25. Deamination occurs in:
(1) kidney (2) liver (3) nephron (4) both (1) & (2)

26. Excretory product of spider is:
(1) uric acid (2) ammonia (3) guanine (4) none of these

27. ADH acts on the :
(1) collecting tubule of kidney (2) loop of Henle
(3) collecting ducts of testes (4) none of these

28. Which of the following are metabolic wastes of protein metabolism:
(1) urea, oxygen and N_2 (2) urea, NH_3 and CO_2
(3) Ammonia, urea and creatinine (4) Nitrogen, urea and CO_2

29. Find the incorrect statement regarding mechanism of urine formation in man:
(1) the glomerular filtration rate is about 125 ml per minute

(2) the ultrafiltration is opposed by the colloidal osmotic pressure of plasma
(3) tubular secretion takes place in the PCT
(4) the counter current system contribute in diluting the urine

30. A bird excrete nitrogenous waste materials in the form:
(1) Uric acid (2) Ammonia (3) Urea (4) Amino acids

31. Which one of the following is correct with reference to haemodialysis?
(1) Absorbs and resends excess of ions
(2) The dialysis unit has a coiled cellophone tube
(3) Blood is pumped back through a suitable artery after haemodialysis
(4) Nitrogenous wastes are removed by active transport

32. Which substance is in higher concentration in blood than in glomerular filtrate:
(1) Urea (2) Plasma proteins (3) water (4) glucose

33. A large quantity of fluid is filtered every day by the nephrons in the kidneys. Only about 1% of it is excreted as urine. The remaining 99% of the filtrate:
(1) is stored in the urinary bladder (2) is reabsorbed into the blood
(3) gets collected into the renal pelvis (4) is lost as sweat

34. Which of the following amino acid plays important role in ornithine cycle:
(1) glycine, methionine (2) Arginine, methionine
(3) Ornithine, citrulline (4) Citrulline, glycine

Exercise-2

1. Which of the following is not a function of the mammalian kidney? **(7thCBO)**
(1) Water retention
(2) Regulation of sodium in the blood
(3) Excretion of toxins
(4) Synthesis of urea

2. Increased sympathetic nervous system stimulation of afferent arterioles results in : **(NSO II L)**
(1) Decreased filtrate production (2) Increased filtrate production
(3) No change in filtration rate (4) Increased kidney function

3. Which of the following statements are correct about excreted nitrogenous waste products? **(3thABO)**

(I) Ammonia is more soluble in water than urea

(II) For each nitrogen atom urea requires more energy to be produced by animals than uric acid

(III) Birds and insects excrete uric acid

(1) (i) only (2) (iii) only (3) (i) and (ii) only (4) (i) and (iii) only

4. With respect to the blood the mammalian kidney does not have an important role in maintaining which of the following? **(9thCBO)**

(1) Water content (2) Osmotic concentration

(3) Blood pressure (4) Glucose levels

5. Which one of the following statements is correct? **(3th NSO I L)**

(1) Bowmans corpuscles + malpighian tubules constitute the glomerulus

(2) Malpighian corpuscles + glomerulus constitute the bowmans capsule

(3) Renal corpuscle and glomerulus constitute malpighian corpuscles

(4) Bowmans capsule and glomerulus together constitute renal corpuscles

Exercise-3

PART - I : NEET / AIPMT QUESTION (PREVIOUS YEARS)

1. Which one of the following is correctly matched pair of the given secretion and its primary role in human physiology? **(AIPMT-2000)**

(1) Sebum – Sexual attraction (2) Sweat – Thermoregulation

(3) Saliva – Tasting food (4) Tears – Excretion of salts

2. In living beings ammonia is converted into urea through **(AIPMT-2000)**

(1) Ornithine cycle (2) Citrulline cycle (3) Fumarine cycle (4) Arginine cycle

3. The ability of the vertebrates to produce concentrated (hyperosmtic) urine usually depends upon the **(AIPMT-2000)**

(1) Area of bowman s capsule epithelium (2) Length of henles loop

(3) Length of the proximal convoluted tubule (3) Capillary network forming glomerulus

4. In Hydra waste material of food digestion and nitrogenous waste material are removed from **(AIPMT-2001)**

(1) Mouth and mouth (2) Body wall and body wall

(3) Mouth and body wall (4) Mouth and tentacles

5. In protozoa like amoeba for osmoregulation which structure is responsible **(AIPMT-2002)**

(1) Contractile vacuole (2) Mitochondria (3) Nucleus (4) Food vacuole

6. If Henle's loop were absent from mammalian nephron, which of the following is to be expected: **(AIPMT-2003)**

(1) There will be no urine formation

(2) There will be hardly any change in the quality and quantity of urine formed

(3) The urine will be more concentrated

(4) The urine will be more dilute

7. When a fresh water protozoan possessing a contractile vacuole is placed in a glass containing marine water the vacuole will **(AIPMT-2004)**

(1) Increase in number (2) Disappear (3) Increase in size (4) Decrease in size

8. Uricotelism is found in: **(AIPMT-2004)**

(1) Birds , reptiles and insects (2) Frogs and toads

(3) Mammals and birds (4) Fishes and fresh water protozoans

9. The net pressure gradient that causes the fluid to filter out of the glomeruli into the capsule is : **(AIPMT-2005)**

(1) 50 mm Hg (2) 75 mm Hg (3) 10 mm Hg (4) 30 mm Hg

10. In ornithine cycle, which of the following wastes are removed from the blood: **(AIPMT-2005)**

(1) CO_2 and urea (2) ammonia and urea (3) CO_2 and ammonia (4) urea and urine

11. A person is undergoing prolonged fasting. His urine will be found to contain abnormal quantitles of : **(AIPMT-2005)**

(1) fats (2) amino acids (3) glucose (4) ketones

12. Bowman's glands are found in: **(AIPMT-2006)**

(1) juxtamedullary nephrons (2) olfactory epithelium

(3) external auditory canal (4) cortical nephrons only

13. Earthworms are : **(AIPMT-2006)**

(1) ammonotelic when plenty of water is available

(2) ureotelic when plenty of water is available

(3) uricotelic when plenty of water is available

(4) uricotelic under conditions of water scarcity

14. Angiotensinogen is a protein produced and secreted by: **(AIPMT-2006)**

(1) juxtaglomerular (JG) cells

(2) macula dense cells

(3) endothelial cells (cells lining the blood vessels)

(4) liver cells

15. Consider the following four statements (A-D) about certain desert animals such as kangaroo rat **(AIPMT (2008)**

(A) They have dark colour and high rate of reproduction 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 D (2) B and C (3) C and A (4) A and B

16. Which one of the following pair of items correctly belongs to the category of organs mentioned against it? **(AIPMT-2008)**

(1) Thorn of Bougainvillea and tendrils of cucurbita – Analogous organs

(2) Nictitating membrane and blind spot in human eye – Vestigial organs

(3) Nephridia of earthworm and Malpighian tubules of cockroach – Excretory organs

(4) Wings of honey bee and wings of crow – Homologous organs

17. Uric acid is the chief nitrogenous component of the excretory products of: **(AIPMT-2009)**

(1) Frog (2) Man (3) Earth worm (4) Cockroach

18. What will happen if the stretch receptors of the urinary bladder wall are totally removed? **(AIPMT-2009)**

(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

19. Which one of the following statements in regard to the excretion by the human kidneys is correct? **(AIPMT Pre-2010)**

(1) Distal convoluted tubule is incapable of reabsorbing HCO_3^-

(2) Nearly 99 per cent of the glomerular filtrate is reabsorbed by the renal tubules

(3) Ascending limb of loop of Henle is impermeable to electrolytes

(4) Descending limb of loop of Henle is impermeable to water

20. The principal nitrogenous excretroy compound in humans is synthesised **(AIPMT Pre-2010)**

(1) In kidneys as well eliminated by kidneys

(2) In liver and also eliminated by the same throught bile

(3) In the liver, but eliminated mostly through kidneys

(4) In kidneys but eliminated mostly through liver

21. Which one of the following is not a part of a renal pyramid. **(AIPMT Pre-2011)**

(1) Peritubular capillaries (2) Convoluted tubules

(3) Collecting ducts (4) Loops of Henle

22. Which one of the following correctly explains the function of a specifice part of a human nephron? **(AIPMT Pre-2011)**

(1) Podocytes : Create minute spaces (slite 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 capilaries

(4) Afferent arteriole : carries the blood away from the glomerulus towards renal vein.

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

(AIPMT Pre-2011)

(1) When someone drinks lot of water, ADH release is suppressed.

(2) Exposure to cold temperature of body stimulates release of ADH

(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.

24. Uricotelic mode of passing out nitrogenous wastes is found in: **(AIPMT Pre-2011)**

(1) Reptiles and Bird (2) Birds and Annelids

(3) Amphibians and Reptiles (4) Insects and Amphibians

25. The maximum amount of electrolytes and water (70 - 80 percent) from the glomerular filtrate is reabsorbed in which part of the nephron? **(AIPMT Pre-2012)**

(1) Ascending limb of loop of Henle (2) Distal convoluted tubule

(3) Proximal convoluted tubule (4) Descending limb of loop of Henle

26. Which one of the following options gives the correct categorisation of six animals according to the type of nitrogenous wastes (A, B, C), they give out? **(AIPMT Mains-2012)**

	A - AMMONOTELIC	**B - UREOTELIC**	**C - URICOTELIC**
(1)	Pigeon, Humans	Aquatic Amphibia, Lizards	Cockroach, Frog
(2)	Frog, Lizards	Aquatic Amphibia, Humans	Cockroach, Pigeon
(3)	Aquatic Amphibia	Frog, Humans	Pigeon, Lizards, Cockroach
(4)	Aquatic Amphibia	Cockroach, Humans	Frog, Pigeon, Lizards

27. A fall in glomerular filtration rate (GFR) activates: **(AIPMT Mains-2012)**

(1) juxta glomerular cells to release renin

(2) adrenal cortex to release aldosterone

(3) adrenal medulla to release adrenaline

(4) posterior pituitary to release vasopressin

28. Which one of the following characteristics is common both in humans and adult frogs?

(AIPMT Mains-2012)

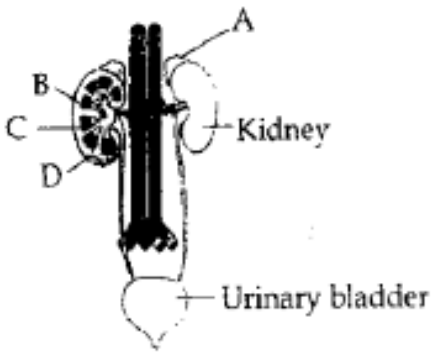
(1) Four - chambered heart

(2) Internal fertilisation

(3) Nucleated RBCs

(4) Ureotelic mode of excretion

29.#✍ Figure shown human urinary system with structures labelled A to D. Select option which correctly identifies them and gives their characteristics and / or functions. **(NEET-2013)**



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

30. Which of the following causes an increase in sodium reabsorption in distal convoluted tubule? **(AIPMT-2014)**

(1) Increase in aldosterone levels (2) Decrease in antidiuretic hormone levels
(3) Decrease in aldosterone levels (4) Decrease in antidiuretic hormone levels

31.✍ The shared terminal duct of the reproductive and urinary system in the human male is: **(AIPMT-2014)**

(1) Urethra (2) Ureter (3) Vas deferens (4) Vasa efferentia

32. Which of the following does not favour the formation of large quantities of dilute urine? **(AIPMT-2015)**

(1) Caffeine (2) Renin
(3) Atrial-natriuretic factor (4) Alcohol

33. Removal of proximal convoluted tubule from the nephron will result in: **(AIPMT-2015)**

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

34. The body cells in cockroach discharge their nitrogenous waste in the haemolymph mainly in the form of: **(Re-AIPMT-2015)**

(1) Potassium urate (2) Urea (3) Calcium carbonate (4) Ammonia

35. Human urine is usually acidic because: **(Re-AIPMT-2015)**

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

36. In mammals, which blood vessel would normally carry largest amount of urea? **(NEET-1-2016)**

(1) Hepatic Portal Vein (2) Renal Vein
(3) Dorsal Aorta (4) HepaticVein

37. The part of nephron involved in active reabsorption of sodium is **(NEET-2-2016)**
(1) descending limb of Henle's loop (2) distal convoluted tubule
(3) proximal convoluted tubule (4) Bowman's capsule

38. Which of the following statements is correct **(NEET-2017)**
(1) The ascending limb of loop of Henls is impermeable to water
(2) The descending limb of loop of Henle is impermeable to water
(3) The ascending limb of loop of Henle is permeable to water
(4) The descending limb of loop of Henle is permeable to electrolytes

39._ Match the items given in Column I with those in Column II and select the ***correct*** option given below:
(NEET-2018)

Column I *(Function):*	**Column II** *(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	iv. Malpighian corpuscle
	v. Proximal convoluted tubule

	a	**b**	**c**	**d**
(1)	iv	v	ii	ii
(2)	v	iv	i	iii
(3)	v	iv	i	ii
(4)	iv	i	ii	iii

40._ Match the items given in Column I with those in Column II and select the ***correct*** option given below:
(NEET-2018)

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**	**c**	**d**
(1)	iii	ii	iv	i
(2)	iv	i	ii	iii
(3)	ii	iii	i	iv
(4)	i	ii	iii	iv

41. Which of the following factors is responbilble the formation of concentrated urine? **(NEET-1-2019)**

(1) Hydrostatic pressure during glomerular filtration.

(2) Low levels of antidiuretic hormone.

(3) Maintaining hyperosmolarity towards it medullary interstitium in the kidneys

(4) Secretion of erythropoietin Juxtaglomerular complex.

42. Use of an artificial kidney during hemodialysis may result in : **(NEET-1-2019)**

(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 (d) are correct

(2) (a) and (b) are correct

(3) (b) and (c) are correct

(4) (c) and (d) are correct

43. Match the following parts of a nephron with their function: **(NEET-2-2019)**

(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 ions and water
(d) Distal convoluted tubule	(iv) Reabsorption of ions, 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)

44. Match the items in Column - I with those in Column - II : **(NEET-2-2019)**

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)

PART - II : AIIMS QUESTION (PREVIOUS YEARS)

1. Ultrafiltration occurs in a glomerulus when: **(AIIMS-1981)**

(1) hydrostatic pressure exceeds osmotic pressure

(2) osmotic pressure exceeds hydrostatic pressure

(3) capsular hydrostatic pressure exceeds glomerular hydrostatic pressure

(4) colloidal osmotic pressure plus capsular pressure remain less than glomerular hydrostatic pressure

2. The end product of ornithine cycle is: **(AIIMS-1999)**

(1) ammonia (2) uric acid (3) urea (4) CO_2

3. Presence of urea in the blood is called: **(AIIMS-2002)**

(1) Uraemia (2) Haematuria (3) Diurea (4) Anuria

4. Which one of the following statements is correct with respect to salt water balance inside the body of living organisms: **(AIIMS-2005)**

(1) When water is not available, camels do not produce urine but store urea in tissues

(2) Salmon fish excretes lot of stored salt through gill membrane

(3) Paramecium discharges concentrated salt solution by contractile vacuoles

(4) The body fluids of fresh water animals are generally hypotonic to surrounding water.

5. Which of the following is correctly matched? **(AIIMS-2009)**

(1) Human -Renal portal system (2) Earthworm - Closed circulatory system

(3) Cockroach – Nephridia (4) None of the above

6. Which one of the following is a matching pair of a certain body feature and its value/count in a normal human adult? **(AIIMS-2011)**

(1) Urea – 5 -10mg / 100 ml of blood

(2) Blood sugar (fasting) – 70 -100 mg/100 ml

(3) Total blood volume – 5-6

(4) ESR in Wintrobe method –9-15 mm in males and 20-34 mm in females

7. In which of the following minimum content of urea is present? **(AIIMS-2012)**

(1) Hepatic portal vein (2) Portal vein (3) Renal vein (4) Vena cava

8. Duct of Bellini is concerned with **(AIIMS-2012)**

(1) Filtration of urine (2) Purification of urine (3) Conduction of urine (4) All the above

9. 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 **(AIIMS-2013)**

(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

10. If Henle's loop were absent from mammalian nephron which of the following is to be expected

(1) There will be no urine formation **(AIIMS-2015)**

(2) There will be hardly any change in the quality and quantity of urine formed

(3) The urine will be more concentrated

(4) The ruine will be more dilute.

11. In ornithine cycle, enzyme arginase breaks down arginine into **(AIIMS-2016)**

(1) Citrulline and ammonia (2) Ornithine and ammonia

(3) Ornithine and urea (4) Citrulline and urea

12. Which of the following process of urine formation takes place all along the renal tubule and collecting duct? **(AIIMS-2017)**

(1) Ultrafiltration and tubular reabsorption (2) Ultrafiltration and tubular secretion

(3) Tubular reabsorption and secretion (4) Anti-current mechanism and reabsorption

13._ Uric acid forms in body by : **(AIIMS-II-2018)**

(1) Phospholipid (2) Glucose (3) DNA (4) RNA

14._ Which of the following are about 90% absorbed in the nephron? **(AIIMS-2018-IV)**

(1) Glucose and amino acids – Active process (2) Glucose and amino acids – Passive process

(3) Cl^-, NH_3, K^+ – Passive process (4) Cl^-, NH_3, K^+ – Active process

Answers

EXERCISE - 1

SECTION - A

1.	(1)	**2.**	(1)	**3.**	(4)	**4.**	(1)	**5.**	(1)	**6.**	(2)	**7.**	(2)

SECTION - B

1.	(3)	**2.**	(1)	**3.**	(1)	**4.**	(1)	**5.**	(3)	**6.**	(3)	**7.**	(4)
8.	(1)	**9.**	(1)	**10.**	(3)	**11.**	(2)	**12.**	(2)	**13.**	(1)		

SECTION - C

1.	(1)	**2.**	(1)	**3.**	(2)	**4.**	(2)

SECTION - D

1.	(2)	**2.**	(4)	**3.**	(1)

SECTION - E

1.	(3)	**2.**	(1)	**3.**	(1)	**4.**	(1)	**5.**	(3)	**6.**	(1)	**7.**	(2)
8.	(1)												

SECTION - F

1.	(4)	**2.**	(1)	**3.**	(3)	**4.**	(1)	**5.**	(3)	**6.**	(1)	**7.**	(1)
8.	(1)												

SECTION - G

1.	(2)	**2.**	(2)	**3.**	(1)	**4.**	(2)	**5.**	(4)	**6.**	(3)	**7.**	(3)
8.	(1)	**9.**	(3)	**10.**	(1)	**11.**	(3)	**12.**	(1)	**13.**	(1)	**14.**	(1)
15.	(3)	**16.**	(2)	**17.**	(3)	**18.**	(4)						

SECTION - H

1.	(4)	**2.**	(3)	**3.**	(3)

SECTION - I

1.	(4)	**2.**	(2)

SECTION - J

1.	(1)

SECTION - K

1.	(3)	**2.**	(1)	**3.**	(3)	**4.**	(3)	**5.**	(3)

Miscellaneous Questions

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

EXERCISE - 2

1.	(4)	**2.**	(1)	**3.**	(4)	**4.**	(4)	**5.**	(4)

EXERCISE - 3

PART- I

1.	(2)	**2.**	(1)	**3.**	(2)	**4.**	(3)	**5.**	(1)	**6.**	(4)	**7.**	(2)
8.	(1)	**9.**	(3)	**10.**	(3)	**11.**	(4)	**12.**	(2)	**13.**	(1)	**14.**	(4)
15.	(2)	**16.**	(3)	**17.**	(4)	**18.**	(1)	**19.**	(2)	**20.**	(3)	**21.**	(2)
22.	(1)	**23.**	(1)	**24.**	(1)	**25.**	(3)	**26.**	(3)	**27.**	(1)	**28.**	(4)
29.	(4)	**30.**	(1)	**31.**	(1)	**32.**	(2)	**33.**	(4)	**34.**	(1)	**35.**	(3)
36.	(4)	**37.**	(3)	**38.**	(1)	**39.**	(4)	**40.**	(2)	**41.**	**(3)**	**42.**	(4)
43.	(2)	**44.**	(3)										

PART- II

1.	(4)	**2.**	(3)	**3.**	(1)	**4.**	(1)	**5.**	(2)	**6.**	(2)	**7.**	(3)
8.	(3)	**9.**	(4)	**10.**	(4)	**11.**	(3)	**12.**	(3)	**13.**	(3)	**14.**	(1)

Self Practice Paper (SPP)

1. Osmoconformers are the animal that:
(1) actively control the osmotic condition of their body fluid
(2) do not actively control the osmotic condition of their body fluid
(3) maintain the condition of body fluid within a narrow osmotic range
(4) None

2. In the kidney of man, glomerular number is
(1) 10^3 (2) 10^4 (3) 10^5 (4) 10^6

3. How much concentrated urine is produced by the nephron?
(1) 4 times (2) 3 times (3) 5 times (4) 6 times

4. If renal plasma flow is 1000 ml/minute and filtration fraction is 24%, what will be glomerular filtration rate per hour?
(1) 240 ml (2) 125 ml (3) 144 ml (4) 14.4 litre

5. Which part of a nephron is called "concentrating segment" as it is permeable to water but almost impermeable to electrolytes?
(1) Proximal convoluted tubule
(2) Distal convoluted tubule
(3) Descending limb of Henle's loop
(4) Ascending limb of Henle's loop

6. Which of the following groups of structures / organs have similar function
(1) Flame cells in liverfluke, nephridia in Hirudinaria, kidneys in human
(2) Gills in fishes, green gland of mosquito, Gizzard in earthworm
(3) Schizocoel in leech, phagocytes in sponge, typhlosole in earthworm
(4) Typhlosole in earthworm, nephridia in Leech, Lung of frog

7. Which one of the following is the correct option?

	A –Ammonotelic	**B – Ureotelic**	**C – Uricotelic**
(1)	Pigeon, Bat	Human, camel	Fish, *Amoeba*
(2)	*Amoeba,* tadpole	Dog, Human	Cockroach, Hawk
(3)	Aqatic amphibians	Frog, Earthworm	Bat, Lizard, Elasmobronchi
(4)	All Fishes, All Mollucs	Human, Frog	Spider, Cockroach

8. Match the excretory functions of **section I** with the part of the excretory system in **section II**. Choose the correct combination from among the answers given.

Section I	**Section II**
(i) Ultra filtration	(A) Henle's loop
(ii) Concentration of urine	(B) Ureter
(iii) Transport of urine	(C) Urinary bladder
(iv) Storage of urine	(D) Malpighian corpuscles
	(E) Proximal convoluted tubule

(1) (i) - D, (ii) - A, (iii) - B, (iv) - C (2) (i) - D, (ii) - C, (iii) - B, (iv) - A
(3) (i) - E, (ii) - D, (iii) - A, (iv) - C (4) (i) - E, (ii) - D, (iii) - A, (iv) - B

9. Alcohol and beer are called as diuretic substances, because
(1) They stimulate the release of ADH
(2) They inhibit ADH release and increase urine output
(3) They inhibit the absorption of Na^+ ions
(4) They stimulate the absorption of Glucose

10. Urine formation involves-
(1) Ultra filtration and reabsorption occuring in different parts of kidney
(2) Ultrafiltration and reabsorption occuring in same part of nephron
(3) Ultrafiltration, reabsorption and secretion occuring in different parts of nephron
(4) Ultrafiltration, reabsorption and secretion occuring in same part of nephron

11. Which of the following structure posses cuboidal brush bordered epithelium?
(1) Bowmann's capsule (2) Neck of PCT
(3) Thin wall of Henle's descending limb (4) PCT except the neck portion

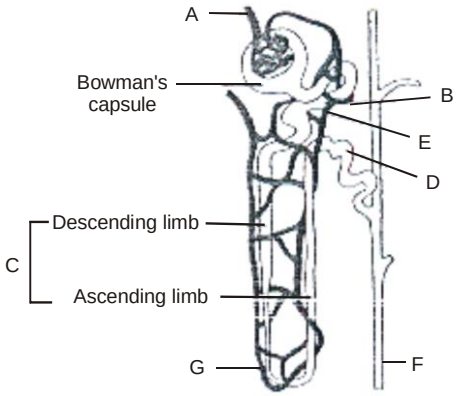
12. Identify the correct formula for effective filtration pressure (EFP)
(1) EFP = BCOP- (GBHP + CHP) (2) EFP = CHP - (BCOP + GBHP)
(3) EFP = GBHP- (BCOP + CHP) (4) EFP = GBHP - (BCOP - CHP)

13. Position of kidney is
(1) opposite to T_5 to L_1 (2) opposite to T_{12} to L_3
(3) opposite to T_7 to L_1 (4) opposite to T_7 to L_3

14. On average, ...ml of blood is filtrated by the kidney per minute which constitutes roughly..... of the blood pumped out by each ventricle of heart in a minute.
(1) 125 ml, 1/6th (2) 100 - 125 ml, 1/6th
(3) 1100 - 1200 ml, 1/5th (4) 5 L, 1/10th

15. Tubular secretion helps to maintain a proper acid-base balance by removing
(1) H^+ and NH_3 (2) Uric acid (3) H^+ and urea (4) NH_3 and creatinine

16.# Match the following and pick up the correct option.



(1) A - Afferent arteriole, B - Proximal convoluted tubule, C - Henle's loop, D - Distal convoluted tubule, E - Peritubular capillaries, F - Collecting duct, G - Vasa recta
(2) A - Efferent arteriole, B - PCT, C - Henle's loop, D - DCT,E - Peritubular capillaries, F - Collecting duct, G - Vasa recta
(3) A - Afferent arteriole, B – Peritubular capillaries, C - Henle's loop, D - DCT, E- PCT, F - Collecting duct, G - Vasa recta
(4) A - Afferent arteriole, B - Henle's loop, C - Collecting duct, D - PCT, E - DCT,F - Peritubular capillaries, G - Vasa recta

17. The terms ammonotelic, ureotelic and uricotelic are used to describe.

(1) Modes of excretory system development
(2) The actions of hormones on the excretory systems
(3) The types of nitrogenous wastes produced by various classes of vertebrates
(4) Modification of kidney tubules to enhance excretion

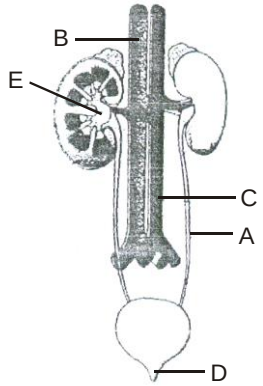
18. Which one of the following statements is wrong?
(1) Kidney does not play any significant role in the removal of ammonia
(2) Ureotelic animals excrete most of the nitrogenous wastes as urea
(3) Ammonia and urea are the waste products from the metabolic break down of proteins
(4) None of the above

19. Which of the following group of animals is ureotelic?
(1) Many terrestrial amphibians (2) Mammals
(3) Marine fishes (4) All

20. Which of the following group of animals is uricotelic?
(1) Reptiles (2) Insects
(3) Birds and land snail (4) All of these

21. Which of following, in small amounts, is retained in the kidneys of some animals to maintain the desired osmolarity?
(1) NH_3 (2) Urea
(3) Uric acid (4) NH_3 and uric acid

22. Observe the following figure and identify the structures A to E.



Human Urinary system

(1) A - Superior vena cava, B - Inferior vena cava, C - Dorsal aorta, D – Urethra, E - Pelvis
(2) A - Inferior vena cava, B - Superior vena cava, C - Dorsal aorta, D – Urethra, E - Pelvis
(3) A – Ureter, B - Inferior vena cava, C - Dorsal aorta, D – Urethra, E - Pelvis
(4) A - Dorsal Aorta, B - Inferior vena cava, C – Urethra, D – Cortex, E - Pelvis

23. Which of the following statements is true?
(1) GHP is due to plasma proteins
(2) BCOP is due to narrower afferent arteriole
(3) Fall in blood pressure reduces EFP
(4) Fall in blood pressure increases both EFP and CHP

24. Terrestrial organisms must conserve water. The least amount of water is lost with the excretion of which nitrogenous waste product?
(1) NH_3 (2) Uric acid (3) Urea (4) CO_2

25. The functioning of the kidneys is efficiently monitored and regulated by hormonal feedback mechanisms involving

(1) Hypothalamus only
(2) JGA only
(3) The heart only
(4) Hypothalamus, JGA and heart (to certain extent)

26. The lesser amount of water is lost with the excretion of which nitrogenous product/s?
(1) NH_3 and urea
(2) NH_3 and uric acid
(3) NH_3
(4) Urea and uric acid

27. When a person is suffering from poor renal reabsorption, which one of the following will not help in maintenance of blood volume?
(1) increased ADH secretion
(2) decreased glomerular filtration
(3) increased arterial pressure in kidneys
(4) decreased arterial pressure in kidneys

28. Match the columns I & II and pick up the correct option.

Column I	**Column II**
A. Nephridia	I. Crustaceans (Prawn)
B. Malpighian tubules	II. Annelids (Earthworm)
C. Antennal glands or green glands	III. Insects (Cockroach)

(1) A-I,B-II,C-III (2) A-III,B-II,C-I (3) A-II,B-III,C-I (4) A-II,B-I,C-III

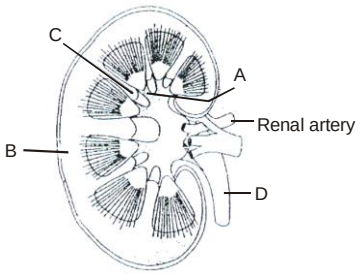
29. Which one of the following statements is wrong about the human excretory system?
(1) Excretory system consists of one pair of bean shaped kidneys, one pair of ureters, a urinary bladder and a urethra
(2) Kidneys are situated between the 12^{th} thoracic and 3^{rd} lumbar vertebrae close to the dorsal wall in abdominal cavity
(3) Right kidney is at little higher level than the left one
(4) All of the above

30. Which of the following statements is false?
I. Outer cortex and inner medulla are the two zones in the kidney
II. Medulla is divided into renal pyramids
III. Renal medullary pyramid projects into the calyx
IV. Inward extension of the cortex between the adjacent pyramids is called renal column of Bertini
(1) I and IV (2) II and IV (3) IV (4) None

31. What will happen if one kidney is removed from the body of a person?
(1) Death due to poisoning
(2) Uraemia and death
(3) Stoppage of urination
(4) Nothing, the person will survive and remain normal

32. Ultrafiltration occurs in the glomerulus when
(1) capsular hydrostatic pressure exceeds osmotic pressure
(2) osmotic pressure exceeds hydrostatic pressure
(3) capsular hydrostatic pressure exceeds glomerular hydrostatic pressure
(4) colloidal osmotic pressure plus capsular pressure remain less than the glomerular hydrostatic pressure

33.# Go through the following figure and identify structures A to D.



Longitudinal section of kidney

(1) A Cortex, B. Calyx , C. Renal Column, D Ureter
(2) A Calyx, B Cortex, C Renal Column, D Ureter
(3) A.Medulla, B.Cortex, C Renal Column, D Ureter
(4) A. Calyx, B. Cortex, C. Ureter, D Renal Column

34. All of the following structures are situated in the renal cortex except.
(1) Loop of henle (2) Malpighian corpuscle
(3) PCT (4) DCT

35. The ornithine cycle facilitates the removal of two waste products from the blood in liver. These are -
(1) CO_2 and urea (2) CO_2 and ammonia
(3) Ammonia and urea (4) Ammonia and uric acid

36. Match the **Columns I** & **II** and pick up the correct option.

Column I	**Column II**
A. Delivers blood to glomerulus	(I) Ascending and descending limbs
B. Carries urine to pelvis and also acts in water reabsorption	(II) Renal artery
C. Collects filtrate from the glomerulus	(III) Collecting duct
D. Loop of Henle	(IV) PCT

(1) A -II,B - III,C - IV,D - I (2) A -I,B - III,C - II,D - IV
(3) A -II,B - IV,C - I,D - III (4) A -IV,B - III,C - II,D – I

37. Match the columns **I** & **II** and pick up the correct option.

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

(1) A-V, B - II, C - IV, D - III, E - I
(3) A - I, B - II, C - IV, D - III, E - V
(2) A-III,B-II,C-IV, D-I, E-V
(4) A-I, B- II, C - IV, D - V, E – III

38. Match Column I & II and pick up the correct option.

Column I	**Column II**
A. PCT	I. Concentrated urine formation
B. DCT	II. Filtration of blood
C. Loop of Henle	III. Reabsorption of 70-80% electrolytes
D. Counter current mechanism	IV. Ionic balance
E. Renal corpuscle	V. Maintenance of concentration gradient in the medulla

	A	**B**	**C**	**D**	**E**
(1)	III	IV	I	V	II
(2)	III	V	IV	II	I
(3)	I	III	II	V	IV
(4)	II	III	I	IV	V

39. Which one of the following statements is correct with respect to salt water balance inside the body of living organisms?

(1) When water is not available camels do not produce urine but store urea in tissues

(2) Salmon fish excretes lot of stored salt through gill membrane when in fresh water

(3) *Paramecium* discharges concentrated salt solution by contractile vacuoles

(4) The body fluids of fresh water animals are generally hypotonic to surrounding water

40. The blood leaving the kidney is significantly lower in

(1) O_2 (2) Fructose (3) Urea (4) CO_2

41. Which of the following is the nitrogenous waste

(1) Creatinine (2) Creatine (3) Guanine (4) All the above

42. Which one is not correct

(1) Humans – Ureotelic (2) Birds – Uricotelic

(3) Lizards – Uricotelic (4) Whale – Ammonotelic

43. Deamination occurs in:

(1) kidney (2) liver (3) nephron (4) both (1) & (2)

44. In glomerulus of human

(1) Afferent glomerular capillary is wider than efferent glomerular capillary

(2) Afferrent glomerular capillary is narrower than efferent glomerular capillary

(3) Afferent glomerular arteriole is narrower than the efferent glomerular arteriole

(4) Afferent glomerular arteriole is wider than the efferent glomerular arteriole

45. Urinary bladder is absent in

(1) Monitar Lizards (2) Snakes (3) Crocodiles (4) All the above

SPP Answers

1.	(2)	**2.**	(4)	**3.**	(1)	**4.**	(4)	**5.**	(3)	**6.**	(1)	**7.**	(2)
8.	(1)	**9.**	(2)	**10.**	(3)	**11.**	(4)	**12.**	(3)	**13.**	(2)	**14.**	(3)
15.	(1)	**16.**	(1)	**17.**	(3)	**18.**	(4)	**19.**	(4)	**20.**	(4)	**21.**	(2)
22.	(3)	**23.**	(3)	**24.**	(2)	**25.**	(4)	**26.**	(4)	**27.**	(3)	**28.**	(3)
29.	(3)	**30.**	(4)	**31.**	(4)	**32.**	(4)	**33.**	(2)	**34.**	(1)	**35.**	(2)
36.	(1)	**37.**	(1)	**38.**	(1)	**39.**	(1)	**40.**	(3)	**41.**	(4)	**42.**	(4)
43.	(2)	**44.**	(4)	**45.**	(4)								