BIOLOGY

NEET & AIIMS

EXCRETORY PRODUCTS AND THEIR ELIMINATION

Example

1. Name the most toxic nitrogenous waste.

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2. In which organ ammonia is converted into urea ?

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3. What do you mean by uricotelism?

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4. Name the main excretory organ of vertebrates.

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5. Name the excretory structure of prawn.

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6. The concave notch in the kidney through which ureter, blood vessels and nerves enter is known as _____

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7. Name the structural ad functional unit of kident.

Watch Video Solution

8. Differentiate afferent arteriole with efferent arteriole in term of their diameter.

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9. Vasa recta is absent or highly reduced in a

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10. State the parts of nephorn situated in cortical region of kideny

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11. Minute spaces formed as a result of arrangement of podocytes in the fittraction membrane are called _____

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12. Where are the specialised cells called podocytes found in a anephron?

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13. How much glomerular filtrate is formed by the kidneys per day in a normal healthy individual?

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14. Which is the major seat of reabsorption in a nephron?

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15. Name the two osmolytes which maintain the osmolarity gradient in the medullary interstitium.

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16. What is the effect of ADH on blood vessels?

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17. Which factor is responsible to inhibit the release of renin from JGA?

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18. Define the term micturition.

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19. Name the largest gland of the body.

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20. The blood in the artificial kidney flows through channels or tubes bounded by _____

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Try Yourself

1. Name two osmolytes.

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2. Name two vertebrates which do not maintain the osmolarity of body fluid.

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3. Define the term "ammonotelism"

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4. Write down the role of kidney in the removal of ammonia.

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5. What do you mean by ureotelic animals?

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6. Name the main excertory product of mammals.

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7. How many ATP are used inside mitjochondria during urea cycle ?

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8. Name the harmful wastes which are removed from blood in urea cycle.

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9. Exeretion of uric acid rewuires _____ loss of water

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10. Name two uricotelic animals.

Watch Video Solution

11. Give the role of protonephridia.

Watch Video Solution

12. Name the excretory structures of earthworm.

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13. Malpighian tubules are the excretory structures of _____

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14. State the function of malpighian tubles.

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15. Name the two zones of kidney.

Watch Video Solution

16. What are columns of Bertini?

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17. Name the two main parts of nephoron.

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18. The branch of renal artery entering the glomerulus is _____

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19. What is Malpighian body ?

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20. Bowman's capsule leads into _____

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21. Which type of epithelium is found in PCT?

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22. The U-shaped blood vessel running parallel to the Henle's loop is _____

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23. Which type of nephrones are less in number, cortical or juxtamedullary nephrons?

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24. In which type of nephrons, the loop of Henle is too short and extends only very little into the medulla part of kidney?

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25. Name the firs tstep of urine formation.

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26. How much blood is fitered by the kidneys per minute ?

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27. Expand JGA.

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28. Which cell of JGA secretge renin?

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29. What percentage of filtrate is rabsorbed by renal tubule?

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30. The process by which additional metabolic wastes are provided by the tubular cells to the filtrate is known as _____

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31. In which segment of nephoron minimum reabsorption takes place?

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32. Which limb of loop of Henle is impermeable to wate but allow transport of electrolyte actively or passively?

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33. State the magnitude of osmolanrity in the cortex of kidney.

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34. Human kidneys can produce urine nearly _____ times concentrated then the initial filtrate formed.

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35. What fo you mena by diuresis?

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36. When does the osmoreceptors in the body get activeted?

Watch Video Solution

37. Expand RAAS.

Watch Video Solution

38. When JG cells release renin?

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39. What is the pH of urine?

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40. Presence of glucose in urine is called

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41. State the metabolic wastes of lungs.

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42. State the composition of sweat.

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43. What is uremia ?

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44. Which is the ultimate method in the correction of acute fenal failures ?

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Exercise

1. Most of vertebrates can maintain a constant internal osmolarity different from the surrounding medium, except

A. Myxine

B. Sharks

C. Bony fishes

D. Both (1) & (2)

Answer: D

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2. Some animals convert highly toxic NH_3 into least toxic trimethylamine oxide (TMAO) and retain high concentration of TMAO and urea to minimise H_2O loss from body are

A. Sharks and rays

B. Fresh water bony

C. Myxine

D. Marine bony fishes

Answer: A

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3. Find out incorrect statement w.r.t. the human kidney

A. Left is little higher than the right one

B. Retropertioneal in position

C. Contains two million neurons, each

D. Located in abdomen at the level of T_{12} to L_3

Answer: C

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4. The opening of urinary bladder is guarded by two urethral sphincter, which one is involuntary in function

A. Internal sphincter

B. External sphincter 0

C. Both the sphincters

D. Both the sphincters are voluntary

Answer: A

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5. Find out incorrect statement w.r.t. the cortical nephrons

A. Most common nephrons in human kidney

B. Bowman's capsule lies close to kidney surface

C. Vasa recta is reduced or absent

D. Control volume of plasma under stress condition

Answer: D

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6. Where do you find podocyte cells in human body ?

A. Brain

B. Liver

C. Kidney

D. Pancreas

Answer: C

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7. Proximal convoluted tuble is highly specialized for reabsorption of substances. It is lined by

A. Simple squamous epithelim

B. Simple columnar epithelium

C. Simple cuboidal epithelium without microvilli

D. Simple cuboidal epithelium with microvilli

Answer: D

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8. Which of the following cannot be considered as part of structur of uriniferous tuble?

A. Bowman's capsule

B. Convoluted tubule

C. Henle's loop

D. Collecting duct

Answer: D

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9. The most advanced kidneys in which loop of Henle is present are called metanephric kidneys, these are found in all, except one

A. Amphibians

B. Reptiles

C. Birds

D. Mammals

Answer: D

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10. Which of the following structure helps in exoretion and conservation of water in terrestrial arthropoods?

A. Maplpighian body

B. Antennary gland

C. Malpighian tubules

D. Keber's organs

Answer: C

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11. Hypersomlarity of interstitial fluid in renal medulla is maintained by retaining high concentration of

A. Urea

B. TMAO

C. Urea and NaCl

D. Urea and Uric acid

Answer: C

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12. How much amount of blood passes through the kidneys per minute in a health person?

A. $125 - 150$ ml

B. $600 - 700$ ml

C. $1100 - 1200$ ml

D. 180 litre

Answer: C

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13. Chemically glomerular filtrate is similar to blood plasma, except

A. Urea

B. Glucose

C. Proteins

D. Electrolytes

Answer: C

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14. A fall in GFR can activate the JG cells to release _____ which can stimulate the glomerular blood flow and threby the GFR back to normal

A. Renin

B. Angiotensin-II

C. Rennin

D. Erthropoietin

Answer: A

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15. Substances like glucose, amino acid NA^+ etc. in the filtrate are reabsorbed by

A. Active transport

B. Passive transport

C. Both active and passive transport

D. Facilitated diffusion

Answer: A

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16. Osmotic concentration of flomerular filtrate is the highest at the bottom of the U-shaped Henie loop. It is about _____ $mOsmL^{-1}$

A. 300

B. 600

C. 900

D. 1200

Answer: D

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17. Which part of nephron is impermeable of H_2O but allows transport of electrolytes actively or passively?

A. PCT

B. Descending limb of Loop of Henle

C. Ascending limb of Loop iof Henle

D. DCT

Answer: C

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18. Counter current machanism helps in concentrating urine in animals and mainly operaters on

$a.$ Henle's loop $b.$ Vasa-react
$c.$ PCT $d.$ DCT

A. a only

B. b only

C. a and b

D. All of these

Answer: C

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19. Diuretic substances like tea, coffee, alcohol etc. increases urine uptput by inhibiting release of hormone

A. Renin

B. Aldosterone

C. ADH

D. Erythropoietin

Answer: C

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20. Mark the inappropriate term w.r.t. the glomerular filtration

A. Non selective

B. Passive process

C. Active process

D. Occurs due to pressure difference

Answer: C

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21. Dialysis fluid contains all the constituents as in plasma except

A. Glucose

B. NaCl

C. Amino acids

D. Urea

Answer: D

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22. Reabsorption of water from distal parts of the tubules is facilitated by hormone_____.

A. Vassopression

B. ADH

C. Aldosterone

D. Both 1 & 2

Answer: D

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23. Mark the incorrect statement:

A. Micturition is carried out by a reflex

B. ADH helps in H_2O elimination, making the urine hypotonic

C. Protein-free fluid is filtered from blood plasma into the Bowman's capsule

D. Glucose is actively reabsorbed in the PCT

Answer: B

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24. Which of the following organs, other than kidneys, also help in the elimination of excretory wastes ?

$a.$ Lungs $b.$ Liver
$c.$ Skin $d.$ Sebaceous glands

A. a only

B. a and b

C. a, b and c

D. a, b, c and d

Answer: D

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25. Find out the incorrectyly matching pair w.r.t. the accessory excretory organs and the excretory wastes eliminated by them

A. Liver-Bilirubin, biliverding and cholesterol

B. Lungs-CO_2 and H_2O

C. Silvary gland- Heavy metals, drugs, small amounts of nitrogenous wastes

D. Sudorfic gland-Sebum containing waxes, sterols and fatty acids

Answer: D

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26. Presence of glucose (glycosuria) and ketone bodies (ketonuria) in urine are indicative of _____

A. Renal failure

B. Diabetes mellitus

C. Bright's disease

D. Renal stone

Answer: B

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27. In case of dehydration, secretion of all harmones increases expect one mark this except one _____

A. Renin

B. Aldosterone

C. Vassopressin

D. ANF

Answer: D

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28. Which of the following is a powerful vasoconstrctor that increases the glomerular blood pressure and thereby the GFR?

A. Renin

B. Angiotensin-II

C. Aldosterone

D. ANF

Answer: B

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29. Which part of brain sends valuntary motor signals to smooth muscles of urinary bladder when the bladder get filled with urine?

A. Medulla

B. Cerebral cortex

C. Hypothalamus

D. Brain stem

Answer: B

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30. Which of the following is not metabolised in human body and therefore, used in determining glomerular filtration rate ?

A. Insulin

B. Inulin

C. Cellulose xanthate

D. Toxic ketones

Answer: B

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Section A Objective Type Questions

1. On an average how much urea is exreted out per day

A. $25 - 30$ g

B. $15 - 20$ g

C. $35 - 40$ g

D. $40 - 45$ g

Answer: A

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2. The most toxic introgenous waste excreted by many bony fishes, aquatic amphibians and aquatic insect is

A. Ammonia

B. Urea

C. Uric acid

D. Both 2 & 3

Answer: A

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3. In crustaceans, the excretory functions are performed by

A. Antennal glands

B. Green glands

C. Both 1 & 2

D. Malpighian tubules

Answer: C

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4. Nearly all of the essential nutrients, and $70 - 80\,\%$ of electrolytes and water are reabsorbed in the

A. PCT

B. Henle's loop

C. DCT

D. Collecting duct

Answer: A

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5. Vasa react is

A. L-shaped

B. U-shaped

C. S-shaped

D. V-shaped

Answer: B

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6. Which is the largest digestive gland of our body?

A. Liver

B. Lung

C. Brain

D. Stomach

Answer: A

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7. An adult human excrectes, on an average _____ litres of urine per day.

A. 1 to 1.5

B. 2 to 2.5

C. 2.5 to 3

D. 3 to 3.5

Answer: A

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8. Malpighian body or renal corpuscle is

A. Glomerulus along with collecting duct

B. Glomerulus along with DTC

C. Glomerulus along with Bowman's capsule

D. Glomerulus along with Loop of Henle

Answer: C

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9. The excretory structure of Amphioxus (Cephalochordate) is

A. Flame cell/ Solenocyte

B. Coxal gland

C. Malpighian tubules

D. Green gland

Answer: A

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10. Least toxic nitrogenous waste among the following is

A. Urea

B. Uric acid

C. Ammonia

D. More than one option is correct

Answer: B

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11. The part through which arteries and veins enter or leave the kidney is called

A. Hilus

B. Renal papilla

C. Major clayces

D. Minor calyces

Answer: A

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12. Podocytes occur in

A. Glomerual capillaries

B. Neck region of nephron

C. Inner wall of Bowman's capsule

D. Outer wall of Bowman's capsule

Answer: C

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13. Loop of Henle is found in

A. Green gland

B. Malpighian tubule

C. Neuron

D. Nephron

Answer: D

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14. Nitrogenous metabolic wastes in our body ar the products of

A. Carbohydrates

B. Proteins

C. Lipids

D. Vitamins

Answer: B

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15. Which one of the following is also known as antidiuretic hormone?

A. Oxytocin

B. Vasopressin

C. Adrenaline

D. Aldosterone

Answer: B

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16. Human beings are

A. Uricotelic

B. Ureotelic

C. Ammonotelic

D. Both 2 & 3

Answer: B

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17. We can produce concentrated? Dilute urine. This is facilitated by a special mechanism. Identify the mechanism.

A. Reabsorption from PCT

B. Reabsorption from collecting duct

C. Reabsorption/secretion in DCT

D. Counter current machanism in Hencle's loop/vassa recta

Answer: D

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18. Uric acid is an excretory product of

$a.$	Cockroach	$b.$	Sparrow
$c.$	Terrestrial reptiles	$d.$	Man

A. a & d

B. b & d

C. a, b & c

D. a, c & d

Answer: C

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19. All are performed in a nephron, except

A. Filtration

B. Secretion

C. Urea synthesis

D. Reabsorption

Answer: C

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20. First step in urine formation is

A. Ultrafitration

B. Tubular secretion

C. Selective secretion

D. Tubular reabsorption

Answer: A

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21. Kidneys are reddish brown, bean-shaped structures situated between the levels of _____ thoracic and _____ lumbar vertebrae.

A. 11^{th}, 1^{th}

B. 12^{th}, 3^{rd}

C. 10^{th}, 2^{nd}

D. 12^{th}, 5^{th}

Answer: B

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22. As compared to plasma, all are the constituents of dialysis fluid, except

A. NaCl

B. Glucose

C. Aminoacid

D. Urea

Answer: D

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23. Which one is the vasoconstrictor?

A. ANF

B. Renin

C. Angiotensin-II

D. Histamine

Answer: C

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24. The condition of accurnulation of urea in blood is termed as

A. Uremia

B. Diuresis

C. Glycosuria

D. Haematuria

Answer: A

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25. Glucose and amino acids in the filtrate are reabsorbed by tubular epitheliar cells through

A. Active transport

B. Passive transport

C. Both 1 and 2

D. Osmosis

Answer: A

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26. Which one does not enter nephron

A. Water

B. Glucose

C. Urea

D. Plasma proteins

Answer: D

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27. I he cause or giomeruilar mtration is

A. Osmosis

B. GHP

C. Hemodialysis

D. Acidic pH

Answer: B

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28. The main function of loop of Henle is

A. Blood filtration

B. Urine formation

C. Water conservation

D. Both 1 & 2

Answer: C

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29. Absorption of water in DCT is controlled by

A. ADH

B. ACTH

C. Oxytocin

D. Inslin

Answer: A

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30. Blood which leaves liver and passes towards heart has higher concentration of

A. Bile

B. Oxygen

C. RBCs

D. Urea

Answer: D

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31. Maximum water reabsorption occurs in

A. DCT

B. PCT

C. Collecting duct

D. Descending limb of Henle

Answer: B

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32. Aldosterone stimulates the reabsorption of

A. Na^+ ions

B. K^+ ions

C. Glucose

D. Ca^{2+} ions

Answer: A

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33. Micturition is

A. Removal of faecal matter

B. Removal of NH_3

C. Removal of urea

D. Removal of urine

Answer: D

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34. In which segment of the nephron, reabsorption is minimum?

A. Proximal convoluted tubule (PCT)

B. Distal convoluted tubule (DCT)

C. Loop of henle

D. Both 1 & 2

Answer: C

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35. Which of the following is excretory product of liver?

A. Carbon dioxide

B. Bilirubin

C. Biliverdin

D. More than one option is correct

Answer: D

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36. Seeat contains

A. NaCl

B. Lactic acid

C. Small amount of urea

D. All of these

Answer: D

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37. What is tne osmorarity on marare at the nampn bend of loop of Henle ?

A. 300 $mOsmL^{-1}$

B. 1200 $mOsmL^{-1}$

C. 600 $mOsmL^{-1}$

D. 800 $mOsmL^{-1}$

Answer: B

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Section B Objective Type Questions

1. The parts of nephron situated in cortical region of kidney are

A. Loop of henle, PCT and collectiong duice

B. Collecting duct, PCT and matpighian chorpuscle

C. PCT, DCT and Loop of Henle

D. PCT, DCT and Malpighian corpuscle

Answer: D

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2. The presence of ketone bodies in urine are indicative of ?

A. Diabetes melitus

B. Diabetes insipidus

C. Reanal calcuuli

D. Glomerulonephritis

Answer: A

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3. On an average _____ ml of blood is filtred by the kidneys per minute which consititute roughly _____ of the blood pumped out by each ventricle of the heart in a minute.

A. $500-600.\ 1/5^{th}$

B. $1100-1200,\ 1/3^{rd}$

C. $500-600,\ 1/3^{rd}$

D. $1100 - 1200, 1/5^{th}$

Answer: D

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4. Which of the following statement is incorrect?

A. ADH is a vasoconstrictor

B. Aldosterone facilitates wate reabsorption

C. ANF enhance sodium reabsorption

D. ANF causes vasodilation

Answer: C

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5. Which one of the following statement is incorrect?

A. The medullary zone of kidney is divided into a feq conical masses called medullary pyramids projecting into calyces

B. Inside the kidney the cortical region extends in between the medullary pyramids as renal pelvis

C. Golmerulus along with Bowman's capsule is called the renal corpuscle

D. Renal corpuscale, proximaal convolute tubble (PCT) and distal convoluted tubule (DCT) of the nephron are situated in the cortical region of kidney

Answer: B

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6. Which one mineness of curve of nunnys

A. Vasopressing

B. Thyroxine

C. Vasopressin and aldosterone

D. Gonadotrophin

Answer: C

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7. Which of the following pairs is wrong ?

A. uricotelic - Birds

B. Ureotelic - Insects

C. Ammonotelic - Bony fishes

D. Uretelic - Elephant

Answer: B

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8. A fresh water fish maintains osmoregulation by

A. Continuously taking in water and eliminating excess of salts

B. Eliminating excess of water and taking up salts from the environment

C. Taking both water and salt from the environment

D. Eliminating both salt and water into the environment

Answer: B

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9. Consider the following water conservation mechanism

A. Nasal countercurrent mechanism

B. dependence on metabolic water

C. Highly hypertonic urine

D. Living more on protein rich diet

The kangaroo rat living in desert can survive without drinking water because of

A. A, B & C

B. A, B & D

C. B, C & D

D. A, C & D

Answer: A

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10. Select the true statement.

A. In fishes kidney play a major role in ammonia excretion

B. Ammonia is 100,000 times less toxic than urea

C. Sharks retain a large amount of urea in the blood as a major osmolyte to balance the osmolarity of the body fluids

D. Most terrestrial reptile excrete ammonia

Answer: C

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11. The kidneys not only remove the waste products from the blood but also play a very important role in maintaining

A. Equlibrium of the body

B. Temperature of the body

C. Constant composition of the blood irrespective of the nature of the food or fluid intake

D. Blood pressure constant

Answer: C

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12. Henle's loops are found in those animals which excrete hypertonic urine. One of the following does not have henle's loop.

A. Birds

B. Mammats

C. Forgs

D. Repities

Answer: C

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13. Which of the following defines the net filtration pressure (NFP)?

A. BCOP-(GHP+CHP)

B. GHP-(BCOP+CHP)

C. (BCOP+GHP)-CHP

D. (GHP-CHP)+BCOP

Answer: B

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14. Which of the following is correct ?

A. Afferent arteriole is narrower than the efferent arteriole

B. Effect venule is narrower than vein

C. Efferent arteriole is narrow than afferent arteriole

D. Both afferent and effernet arteriole are of same diameter

Answer: C

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15. Concentration of sodium and chloride ions is lowest

A. Near the cortex

B. Deep in medulla

C. In the interstitial fluid

D. In the middle of Henle's loop

Answer: A

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16. Angiotensin-II increases the blood volume by

A. Singnlling PCT to reabsorb more NaCl and water

B. Stimulating adrenal gland to release aldosterone

C. By stimulating the release of ADH

D. More thean one option is correct

Answer: D

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17. When the volume of body fluid falls below normal, ADH

A. Decreasses permeablity of distal convoluted tubule and collecting tubule

B. Increases permeability of distal convoluted tubule and collecting tubule

C. Has nothing to do with permeability of convoluted tubule

D. Decreases permeability of proximal convoluted tubule

Answer: B

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18. The yellow color of urine is due to

A. Uric acid

B. Urea

C. Urochrome

D. Melanin

Answer: C

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19. Vitamin excreted by urine in higher vertebrates is

A. A

B. D

C. K

D. C

Answer: D

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20. Haematuria is the disorder involving

A. The loss of blood through the urine

B. Loss of haemoglobin in RBC

C. Loss of glucose in urine

D. The increase in concentration of blood urea

Answer: A

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Section C Previous Years Questions

1. A decrease in blood pressure / volume will not cause the release of

A. Renin

B. Atrial Natriuretic Factor

C. Aldosterone

D. ADH

Answer: B

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2. The part of nephron involved in active reabsorption of sodium is

A. Distal convoluted tubute

B. Proximal convoluted tubule

C. Browman's capsule

D. Descending limb of Henle's loop

Answer: B

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3. Human urine is usually acidic because

A. Hydrogen ions are actively secreted into the fitrate

B. The sodium transporter exchanges one hydrogen ion for each sodium ion, in peritubular capillaries

C. Excreted plasm proteins are acidic

D. Potassium and sodium exchange generated acidity

Answer: A

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4. Removal of proximal convoluted tubule from the nephron will be result in

A. No urine formation

B. More diluted urine

C. More concentrated urine

D. No change in quality and quantity of urine

Answer: B

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5. Which of the following does not favour the formation of large quantities of dilute urine

A. Atrial natriuretic factor

B. Alcohol

C. Ceffeine

D. Renin

Answer: D

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6. Which of the following causes an increase in sodium reabsorption in the distal convoluted tubule

A. Increase in aldosterone levels

B. Increase in antidiuretic hormone levels

C. Decrease in aldosterone levels

D. Decrease in antidiuretic hormone levels

Answer: A

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7. The maximum amount of electrolytes and water (70-80 per cent) from the glomerular filtrate is reabsorbed in which part of the nephron?

A. Proximal convoluted tubule

B. Descending limb of Loop of Henle

C. Ascending limb of loop of Henle

D. Distal convoluted tubule

Answer: A

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8. Which one of the folloowing options gives the correcct categorisation of animals according to the type of nitrogenous waste they give out?

	A	B	C
A.	Ammonotelic	Ureotelic	Uricotelic
	Pigon Humans	Aquatic Amphibia Lizards	Cockroach Frog
	A	B	C
B.	Ammonotelic	Ureotelic	Uricotelic
	Frog Lizards	Aquatic Amphibia Lizards	Cocroach Pigeon
	A	B	C
C.	Ammonotelic	Ureotelic	Uricotelic
	Aquatic Amphibia	Frog Humans	Pigon Lizards Cocroach
	A	B	C
D.	Ammonotelic	Ureotelic	Uricotelic
	Aquatic Amphibia	Cocroach Humans	Frog Pigeon Lizards

Answer: C

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9. A fall in glomerular filtration rate (GFR) activates

A. Posterior pituitary to release vasopressin

B. Joxtra glomerular cells to release renin

C. Adrenal cortex to release aldosterone

D. Adrenal medulla to release adrenaline

Answer: B

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10. Which one of the following is not a part of a renal pyramid

A. Loop of Henle

B. Pertubular capillaries

C. Convoluted tubules

D. Collecting ducts

Answer: C

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11. Which one of the following is a correct pair showing the function of a specific part of the human nephron?

A. Afferent arteriole carries the blood away from the flomerulus towards renal vein.

B. Podocytes: Create minute spaces (slit pores) for the fitration of blood into the Bowman's capsule.

C. Henle's loop: most reabsorption of the major substances from the glomerular filtrate

D. Distal convoluted tubles: reabsorption of K^+ ions into the surrounding blood capillaries

Answer: B

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12. Uricotelic mode of passing out nitrogenous wastes is found in

A. Insects and Amphibians

B. Reptiles and Birds

C. Birds and Annelids

D. Amphibians and Reptiles

Answer: B

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13. Which one of the following statement is correct respect to kidney function regulation

A. During summer when body loses lot of water by evaporatio, the release of ADH is suppressed

B. When someone drinks lot of wate, ADH release is suppressed

C. Exprosure to cold temperatuer stimulates ADH release

D. An increase in glomerular blood flow stimulates formation of Angiotensin

Answer: B

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14. Which one of the following statements in regard to the excretion by the human kidneys is correct?

A. Asconding limb of Loop of Henle is impermeable to electrolytes

B. Descending limb of Loop of Henle is impermeable of water

C. Distal convoluted tuble is incapable of reabsorbind HCO_3

D. Nearly 99 percent of the glomerular fitrateis reabsorbed by the renal tubules

Answer: D

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15. The principal nitrogenous exretory compound in humans is syntheised

A. In the liver, but eliminated mostly through kidneys

B. In kidneys, but eleminated mostly through liver

C. In kidneys as well as eliminated by kidneys

D. In liver and also eliminated by the same through bile

Answer: A

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16. In which of the following organisms, the excretory organs are correctly stated?

A. Humans - Kidneys, subacecos glands and tear glands

B. Earthworm - Pharyngeal, integumentary and septal nephridia

C. Cocroach - Malpighian tubules and enteric caeca

D. Frog - Kidneys, skin and buccal epithelium

Answer: B

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17. What will happen if the stretch receptors of the urinary bladder wall are totally removed

A. Micturition will continue

B. Urine will continue to collect normally in the bladder

C. There will be no micturition

D. Urine will not collect in the bladder

Answer: C

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18. Angiotensinogen is a protein produced and secreted by

A. Macula densa cells

B. Endothelial cells (cells lining the blood vessels)

C. Liver cells

D. Juxtaglomerular (JG) cells

Answer: C

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19. The net pressure gradient that causes the fluid to filter out of the glomeruli into the capsule is -

A. 20 mm Hg

B. 75 mm Hg

C. 30 mm Hg

D. 50 mm Hg

Answer: A

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20. In Ornithine cycle which one pair of the following wastes as removed from the blood?

A. Urea and urine

B. Ammonia and urea

C. CO_2 and ammonia

D. CO_2 and urea

Answer: C

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21. A person is undergoing prolonged fasting. His urine would contain absormal quantities of

A. Fats

B. Ketones

C. Amino acids

D. Glucose

Answer: B

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22. Two animals in which the nitrogenous wastes are excreted from body in the from of urin acid are

A. Birds and lizards

B. Frogs and cartilaginous fishes

C. Insects and bony fishes

D. Mammals and mollusc

Answer: A

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23. Uricotelism is found in

A. Mammals and birds

B. Fishes and fresh water protozoans

C. Birds, reptiles and insects

D. Forgs and toads

Answer: C

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24. A terrestrial animal must be able to

A. Excrete large amount of water in urine

B. Conserve water

C. Actively pump salts out through the skin

D. Excrete large amounts of salts in urine

Answer: B

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25. Uric acid is the chief nitrogenous component of the excretory products of :

A. Frog

B. Man

C. Earthworm

D. Cockroach

Answer: D

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26. if an osmoconformer animal is placed in sea water then

A. It will develop incocytes to actively absorb the salts from outside

B. it will develop a thick body covber to prevent enter of excess of water

C. It will start passing dilute urine

D. It will change osmolarity of its body fluid.

Answer: D

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27. Contractile vacule to pump out excess of water is found in

A. Fresh water protozons

B. marine protozoans

C. Parastic protozoans

D. Lower chordates

Answer: A

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28. In ureotelic animals, urea is formed by

A. kreb's cycle

B. EM pathway

C. Ornitine cycle

D. Cori's cycle

Answer: C

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29. Arginase enzyme will be operting at which step of the ornithine cycle?

A. Ornitine $\rightarrow$ Urea

B. Arginine $\rightarrow$ Ornithine

C. Ornithine $\rightarrow$ Citrulline

D. Citrulline $\rightarrow$ Arginosuccinate

Answer: B

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30. Uric acid is produced by metabolism of

A. Adenine

B. Guanine

C. Cytosine

D. Both 1 & 2

Answer: D

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31. Which one of the four parts mentioned below does not constitute a part of a single uriniferous tubule

A. Distal convoluted tubute

B. Collecting duct

C. Bowman's capsule

D. Loop of Henie

Answer: B

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32. Math the following

Column I	Column II
$a.\ PCT$	(i)Function is Na^+ and K^+ homeostasis
$b.$ Descending loop of Henle	(ii)Permable of NaCl but impermeable to wa
$c.$ Ascending loop of Henle	(iii)Permeable to water but not to salt
$d.\ DCT$	(iv)Reabsorbing about 90% of the important

A. $a(i), b(ii), c(iii)d(iv)$

B. $a(i), b(iii), c(ii)d(iv)$

C. $a(iv), b(iii), c(ii)d(i)$

D. $a(ii), b(iii), c(i)d(iv)$

Answer: C

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33. Brush border surface is the distinct feature of which of the following part of nephron?

A. PCT

B. Ascending limb of loop of Henle

C. DCT

D. Collecting duct

Answer: A

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34. Which of the following statement is not ture ?

A. Descending limb of loop of henle is permeable to urea

B. DCT function in K^+, Na^+ homeostasis

C. Descending limb is impermeable to water

D. Loop of Henle is largely resopnsible for concentrating urine

Answer: C

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35. Hypertonicity of fitreate is minimum at

A. Base of lop of henle

B. Inner most part of medulla

C. Outer part of medulla

D. Cortical region

Answer: D

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36. As the glomerular fitrate courses the tubules, its composition and osmotic concentration changes, due to tubular reabsorption. Which of the following is incorrect match regarding the segment of nephron and osmotic concentration of filtrate ?

A.

Segment of nephron	Osmotic concentration of filtrate
Proximal convoluted tuble	Istonic to blood plasms

B.

Segment of nephron	Osmotic concentration of filtrate
Descending limb of Henle's loop	Hypotonic

C.

Segment of nephron	Osmotic concentration of filtrate
Ascending limb of Henle's loop	Hypotonic

D.

Segment of nephron	Osmotic concentration of filtrate
Bowman's capsule	Hypotonic

Answer: D

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37. Concentration of urine depends upon which organ -

A. Bowman's capsule

B. Length of Henle's loop

C. P.C.T

D. Network of capillaries arising from glomerulus

Answer: B

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

A. There will be no urine formation

B. There will be hardly any change in the quality and quantity of urine formed

C. The urine will be more concentrated

D. The urine will be more dilute

Answer: D

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39. Which of the following changes can occur in rsponse to increased Angiotensin-II level?

A. Increase in the glomerular hydrostatic pressure (GHP)

B. Inhibition of aldosterone

C. Decrease in the GFR

D. Decrease in BCOP

Answer: A

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40. Which one is mainly responsible for absorption of Na^+ in the PCT part of nephron?

A. Angiotensin-II

B. Angiotensin-I

C. Aldosterone

D. Atrial Natriuretic Factor (ANF)

Answer: A

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41. In response to decrease in blood volume and blood pressure which of the following do not occur ?

A. Secretion of renin

B. Secretion of aldosterone

C. Secretion of vassopressin

D. Secretion of ANF

Answer: D

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42. Which of the following is not a feature of cortical nephros?

A. These are more common, approximately $85\ \%$ of nephrons

B. Their glomeruli are in outer cortex

C. Their loop of Henle extend to a short distance into the medulla

D. They are associated with vasa recta

Answer: D

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43. A condition of failure of kidney to form urine is called

A. Aunria

B. Deamination

C. Entropy

D. Uraemia

Answer: A

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44. A person on long hunger strike and surviving only on water will have

A. Less amino acids in his urine

B. More glucose in his blood

C. Less urea in his urine

D. More sodium in his urine

Answer: C

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45. Which of the following is not present in sweat ?

A. Amino acid

B. NaCl

C. Lactic acid

D. Uric acid

Answer: D

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46. Body fluids of shark and coelacanths can be termed as

A. Hyperosmotic and hypoionic to sea water

B. Hypersomtic and hyperionic to sea water

C. Hyposmotic and hypotonic to sea water

D. Hyposmotic and hyperionic to sea water

Answer: A

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Section D Assertin Reason Type Quastion

1. Assertion: Pregnant women may show some presence of glucose in their postprandial urine although they have no diabetes.

Reason: In pregnant women the glomerular filtration rate is slightly increased. As a result the tubular load of glucose exceeds the tubular maximum for glucose reabsorption.

A. If both Assertion & Reason are true and the reason is the correct explanation of the assertin, then mark (1)

B. If both Assertion & Reason are true but the reason is not the correct explanation of the assertin, then mark (2)

C. If Assertion is true statement but Reason is false, then mark (3)

D. If both Assertin and Reason are false statements, then mark (4)

Answer: A

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2. A: Atrial naturiuretic factor is released by wall of atria.

R: It inhibits the release of renin from juxta glomerular apparatus.

A. If both Assertion & Reason are true and the reason is the correct explanation of the assertin, then mark (1)

B. If both Assertion & Reason are true but the reason is not the correct explanation of the assertin, then mark (2)

C. If Assertion is true statement but Reason is false, then mark (3)

D. If both Assertin and Reason are false statements, then mark (4)

Answer: B

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3. A: Inner wall of Bowman's capsule is lined with specialized cells - podocytes having a number of projections

R: These projections increases the suface area from absorptions.

A. If both Assertion & Reason are true and the reason is the correct explanation of the assertin, then mark (1)

B. If both Assertion & Reason are true but the reason is not the correct explanation of the assertin, then mark (2)

C. If Assertion is true statement but Reason is false, then mark (3)

D. If both Assertin and Reason are false statements, then mark (4)

Answer: C

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4. Assertion: Kidneys are retroperitoneal in position.

Reason: Kidneys are covered with peritoneum only on ventral surface.

A. If both Assertion & Reason are true and the reason is the correct explanation of the assertin, then mark (1)

B. If both Assertion & Reason are true but the reason is not the correct explanation of the assertin, then mark (2)

C. If Assertion is true statement but Reason is false, then mark (3)

D. If both Assertin and Reason are false statements, then mark (4)

Answer: A

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5. Assertion: Uric acid is produced by the metabolism of purine and pyrimidine.

Reason: Uric acid has high toxicity and is soluble in water.

A. If both Assertion & Reason are true and the reason is the correct explanation of the assertin, then mark (1)

B. If both Assertion & Reason are true but the reason is not the correct explanation of the assertin, then mark (2)

C. If Assertion is true statement but Reason is false, then mark (3)

D. If both Assertin and Reason are false statements, then mark (4)

Answer: D

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6. Assertion: In the descending limb of loop of Henle the urine is hypotoonic, while in ascending limb of loop of Henle, the urine is

hypertonic.

Reason: Descending limb is impermeable to water while ascending limb is impermeable to Na^+

A. If both Assertion & Reason are true and the reason is the correct explanation of the assertin, then mark (1)

B. If both Assertion & Reason are true but the reason is not the correct explanation of the assertin, then mark (2)

C. If Assertion is true statement but Reason is false, then mark (3)

D. If both Assertin and Reason are false statements, then mark (4)

Answer: A

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7. A: The final reabsorption of water from urine into blood ocurs through the collecting duct of a mammalian nephron, resulting in the production of hyperosomotic urine.

R: The loop of Henle is responsible for the formation of a sodium gradient across the depth of the medullary intersitium of a mammalian kidney.

A. If both Assertion & Reason are true and the reason is the correct explanation of the assertin, then mark (1)

B. If both Assertion & Reason are true but the reason is not the correct explanation of the assertin, then mark (2)

C. If Assertion is true statement but Reason is false, then mark (3)

D. If both Assertin and Reason are false statements, then mark (4)

Answer: B

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8. Assertion : Diabetes insipidus iS marked by excessive urination and too much thirst for water .

Reason : Anti-diuretic hormone (ADH) is secreted by the posterior lobe of pituitary gland .

A. If both Assertion & Reason are true and the reason is the correct explanation of the assertin, then mark (1)

B. If both Assertion & Reason are true but the reason is not the correct explanation of the assertin, then mark (2)

C. If Assertion is true statement but Reason is false, then mark (3)

D. If both Assertin and Reason are false statements, then mark (4)

Answer: C

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9. A: Lnulin is ussed in testing kidney function especially glomerular fittation.

R: Lnulin ia a fructan strong polysaccharide.

A. If both Assertion & Reason are true and the reason is the correct explanation of the assertin, then mark (1)

B. If both Assertion & Reason are true but the reason is not the correct explanation of the assertin, then mark (2)

C. If Assertion is true statement but Reason is false, then mark (3)

D. If both Assertin and Reason are false statements, then mark (4)

Answer: B

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10. A: Tubular secretion is of considerable importance in larine teleost fishes.

R: These have aglomerular kidney i.e., no fitration occurs and tubular secetion is the only way of excertion.

A. If both Assertion & Reason are true and the reason is the correct explanation of the assertin, then mark (1)

B. If both Assertion & Reason are true but the reason is not the correct explanation of the assertin, then mark (2)

C. If Assertion is true statement but Reason is false, then mark (3)

D. If both Assertin and Reason are false statements, then mark (4)

Answer: A

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