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**Subject: Biology**

**Topic: Excretory Products & Their Elimination**

**M.M. 320 COMPETITIVE TEST**  **Time: 60 Min.**

1. Which one of the following statement is correct with respect to kidney function regulation :

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

b) Exposure to cold temperature stimulates ADH release

c) An increase in glomerular blood flow stimulates formation of angiotensin II.

d) During summer when body loses lot of water by evaporation the release o0f ADH is suppressed.

1. Which of the following is the correct pathway of passage of urine in humans?

|  |  |
| --- | --- |
| a) Collecting tubule Ureter bladder Urethra | b) renal vein renal ureter bladder Urethra |
| c) pelvis medulla bladder Urethra | d) Cortex Medulla bladder Urethra |

1. Ammonia and urea are waster products derived from the metabolic breakdown of :

|  |  |  |  |
| --- | --- | --- | --- |
| a) Lipids | b) Carbohydrates | c) proteins | d) Sugars |

1. Urea and uric acid are :

|  |  |  |  |
| --- | --- | --- | --- |
| a) more toxic than NH3 | b) Less toxic than NH3 | c) Equally toxic than NH3 | d) Non-toxic |

1. Match column I and column II

|  |  |
| --- | --- |
| Column I | Column II |
| A. Nephridia | I. Crustaceans |
| B. Malpighian tubules | II. annelids |
| C. Antennal gland | III. Insects |

|  |  |  |  |
| --- | --- | --- | --- |
| a) A – I ; B – II ; C – III | b) A – III ; B – II ; C – I | c) A – II ; B – III ; C – I | d) A – II ; B – I ; C – III |

1. Inner to hilum of kidney is a broad funnel shaped structure called :

|  |  |  |  |
| --- | --- | --- | --- |
| a) Cortex | b) Medulla | c) Pelvis | d) calyx |

1. Which of the following statements are not correct ?
2. outer cortex and inner medulla are the two zones in kidney
3. Medulla is divided into renal pyramids
4. Pyramids projects into calyx
5. Inwards extension to cortex between pyramids is called renal column of Bertiniti.

|  |  |  |  |
| --- | --- | --- | --- |
| a) 1 & 4 | b) 2 & 4 | c) 4 | d) None |

1. Vasa recta is \_\_\_\_\_\_\_\_\_\_\_.

|  |  |  |  |
| --- | --- | --- | --- |
| a) L – shaped | b) S – shaped | c) U – shaped | d) J – shaped |

1. Urine formation involves

a) Ultrafiltration and reabsorption occurring in different parts of nephrons

b) Ultrafiltration and reabsorption occurring in same parts of nephrons

c) Ultrafiltration , reabsorption and secretion occurring in different parts of nephrons

d) Ultrafiltration , reabsorption and secretion occurring in same parts of nephrons

1. The amount of the filtrate formed by the kidney/minute is called GFR (glomerular Filtrate Rate). The GFR of healthy adult is :

|  |  |  |  |
| --- | --- | --- | --- |
| a) 80 ml/m | b) 125 ml/m | c) 300 ml/m | d) 20 ml/m |

1. The GFR/day of a healthy adult is :

|  |  |  |  |
| --- | --- | --- | --- |
| a) 5 L | b) 180 L | c) 200 L | d) 20 L |

1. Of the filtrate, nearly how much of it reabsorbed by the renal tubules :

|  |  |  |  |
| --- | --- | --- | --- |
| a) 5 % | b) 99 % | c) 50 % | d) 25 % |

1. Which one plays an important role in counter current mechanism?

|  |  |  |  |
| --- | --- | --- | --- |
| a) Vasa recta | b) PCT | c) loop of henle | d) Both (a) & (c) |

1. The medullary gradient is mainly caused by :

|  |  |  |  |
| --- | --- | --- | --- |
| a) Urea and K+ | b) H+ & K+ | c) NaCl and urea | d) urea and H+ |

1. NaCl is transported by the ascending limb of Henle’s loop which is exchanged with :

|  |  |  |  |
| --- | --- | --- | --- |
| a) DCT | b) PCT | c) Ascending limb of vasa recta | d) Descending limb of vasa recta |

1. The reabsorption of water in the kidneys is under control of which hormone:

|  |  |  |  |
| --- | --- | --- | --- |
| a) STH | b) ACTH | c) LH | d) Vasopressin/ADH |

1. Osmoregulation is the function of :

|  |  |  |  |
| --- | --- | --- | --- |
| a) Oxytocin | b) prolactin | c) ADH | d) None of these |

1. Which of the following is true about Atrial Natriuretic Factor (ANF) ?

a) An increase in blood volume and BP stimulates cardiac atria to release ANF

b) ANF promotes vasoconstriction and thereby decrease B.P.

c) ANF acts as check on RAAS

d) Both (a) & (c)

1. RAAS secretes which of the following hormones?

|  |  |  |  |
| --- | --- | --- | --- |
| a) glucocorticoids | b) Renin | c) Mineralocorticoids | d) Both (b) & (c) |

1. In micturition :

|  |  |  |  |
| --- | --- | --- | --- |
| a) Urethra relaxes | b) Urethra constricts | c) Bladder relaxes | d) none of these |

1. Average pH of urine is :

|  |  |  |  |
| --- | --- | --- | --- |
| a) 6 | b) 9 | c) 3 | d) 7 |

1. Renin is released by:

|  |  |  |  |
| --- | --- | --- | --- |
| a) loop of henle | b) collecting duct | c) juxtaglomerular cell | d) renal pelvis |

1. Of the total nephron, the juxtamedullary nephrons constitute:

|  |  |  |  |
| --- | --- | --- | --- |
| a) 15 % | b) 45 % | c) 65 % | d) 85 % |

1. Which one of the following is not normally excreted in urine?

|  |  |  |  |
| --- | --- | --- | --- |
| a) uric acid | b) haemoglobin | c) Creatinine | d) Hippuric acid |

1. Diuresis is the condition in which :

|  |  |
| --- | --- |
| a) the excretory volume of urine increases | b) the excretory volume of urine decreases |
| c) the kidney fails to excrete urine | d) the water balance of body is disturbed |

1. The function of renin is :

|  |  |  |  |
| --- | --- | --- | --- |
| a) Stimulates corpus luteum | b) Vasodilation | c) to reduce blood pressure | d) degrade Angiotensinogen |

1. Podocytes are the cells present on :

|  |  |
| --- | --- |
| a) Outer wall of Bowman’s capsule | b) Inner wall of Bowman’s capsule |
| c) Neck of nephron | d) Wall of glomerular capillaries |

1. Arginase enzyme is found in :

|  |  |  |  |
| --- | --- | --- | --- |
| a) kidney | b) liver | c) adrenal gland | d) spleen |

1. Urea is synthesized from:

|  |  |  |  |
| --- | --- | --- | --- |
| a) CO2 & uric acid | b) CO2 & ammonia | c) Ammonia & uric acid | d) CO2 & water |

1. Brush border cells are found in :

|  |  |  |  |
| --- | --- | --- | --- |
| a) PCT & DCT | b) PCT & small intestine | c) Bowman’s capsule | d) Loop of henle |

1. Which of the following animals uses protonephridia with flame cell for excretion?

|  |  |  |  |
| --- | --- | --- | --- |
| a) protozoans | b) sponges | c) Cnidarians | d) Platyhelminthes |

1. Which of the following is an incorrect match?

|  |  |
| --- | --- |
| a) Bowman’s capsule – Glomerular filtration | b) DCT – Absorption of glucose |
| c) Henle’s loop – concentration of urine | d) PCT – Absorption of Na+ and K+ |

1. Vasa recta :

|  |  |
| --- | --- |
| a) is a part of nephron | b) participates in counter current mechanism |
| c) is a blood vessel | d) Both (b) & (c) |

1. A large quantity of fluid is filtered everyday by nephrons in the kidneys. Only about 1 % of it is excreted as urine. The remaining 99 % of the filtrate :

|  |  |
| --- | --- |
| a) is stored in urinary bladder | b) is reabsorbed into blood |
| c) get collect in renal pelvis | d) is lost as sweat |

1. Which of the following is incorrect with respect to juxtamedullary nephrons?

|  |  |
| --- | --- |
| a) Loop of henle is long | b) Vasa recta is present |
| c) These nephron help in concentrating urine | d) 85 % of total nephrons |

1. Read the given statement and identify the structure referred here.
2. Reabsorption in this region is minimum
3. This region plays an important role in the maintenance of high osmolality of interstitial fluid
4. Its descending limb is permeable to water but almost impermeable to electrolytes
5. its ascending limb is impermeable to water but allows transport of electrolytes actively or passively

|  |  |  |  |
| --- | --- | --- | --- |
| a) PCT | b) Loop of henle | c) DCT | d) Bowman’s capsule |

1. The principal nitrogenous excretory compound in human is synthesized :

|  |  |
| --- | --- |
| a) in kidney but eliminated mostly through liver | b) in kidney as well as eliminated by kidneys |
| c) in liver and also eliminated by the same through bile | d) in liver but eliminated mostly through kidney |

1. Which of these is the least toxic excretory products in animals?

|  |  |  |  |
| --- | --- | --- | --- |
| a) Urea | b) uric acid | c) ammonia | d) None of these |

1. Dialyzing unit (Artificial kidney) contains a fluid which is almost same as plasma except that it has:

|  |  |  |  |
| --- | --- | --- | --- |
| a) high glucose | b) high urea | c) no urea | d) high uric acid |

1. All of the following parts of nephron are present in cortical region of kidney, except:

|  |  |  |  |
| --- | --- | --- | --- |
| a) PCT | b) Loop of henle | c) DCT | d) Bowman’s capsule |

1. Which of the following is the correct sequence of processes involved in urine formation?

|  |  |
| --- | --- |
| a) secretion , reabsorption , Filtration | b) filtration , Reabsorption , secretion |
| c) reabsorption , filtration , secretion | d) reabsorption , secretion , filtration |

1. If Henle’s loop were absent from mammalian nephron, which of the following is to be expected?

|  |  |
| --- | --- |
| a) There will be no urine | b) There will be hardly any change in quality & quantity of urine |
| c) The urine will be more concentrated | d) the urine will be more diluted |

1. A condition of failure of kidney to form urine is called :

|  |  |  |  |
| --- | --- | --- | --- |
| a) Deamination | b) Nocturia | c) Anuria | d) Dysuria |

1. Henle’s distal convoluted tubule is permeable for :

|  |  |  |  |
| --- | --- | --- | --- |
| a) K+ ions | b) Na+ ions | c) Cl – ions | d) all of these |

1. Accessory excretory human organs are :

|  |  |  |  |
| --- | --- | --- | --- |
| a) skin | b) skin & liver | c) skin & Lungs | d) skin , lungs , liver |

1. A man takes large amount of proteins. He is likely to be excrete a greater amount of :

|  |  |  |  |
| --- | --- | --- | --- |
| a) urea | b) uric acid | c) sugar | d) none of these |

1. Which of the following muscle is present in the wall of urinary bladder?

|  |  |  |  |
| --- | --- | --- | --- |
| a) Dartos | b) Cremaster | c) Detrusor | d) abdominal |

1. Which one does not pass nephron?

|  |  |  |  |
| --- | --- | --- | --- |
| a) water | b) glucose | c) plasma proteins | d) urea |

1. In which of the following regions of nephron, does maximum reabsorption of useful substances takes place?

|  |  |  |  |
| --- | --- | --- | --- |
| a) Henle’s loop | b) Glomerulus | c) PCT | d) DCT |

1. Glomerulus along with Bowman’s capsule called :

|  |  |  |  |
| --- | --- | --- | --- |
| a) Malpighian tubules | b) Malpighian body | c) Renal corpuscles | d) Both (b) & (c) |

1. Vasa recta refers to :

|  |  |
| --- | --- |
| a) Blood capillaries in vertebrates | b) Juxtaglomerular apparatus in kidneys |
| c) rectum region of insects | d) Capillary running parallel to Henle’s loop |

1. Which of the following is incorrect regrading to human kidney:

|  |  |
| --- | --- |
| a) Renal corpuscles are present in cortex region | b) Renal artery and nerves enter through hilum |
| c) Cortex penetrates into medulla to form columns of Bertiniti | d) Blood enters glomerulus through efferent arteriole |

1. Kidneys are vital organ of the body because they help in :

|  |  |  |  |
| --- | --- | --- | --- |
| a) Removal of metabolic waste | b) regulation of pH | c) maintain level of body fluid | d) all of these |

1. Which of the following parts of nephron is impermeable for water and called diluting segment?

|  |  |
| --- | --- |
| a) Collecting duct | b) DCT |
| c) Ascending limb of Henle’s loop | d) Descending limb of Henle’s loop |

1. Alcohol increase the urinary output by inhibiting the release of :

|  |  |  |  |
| --- | --- | --- | --- |
| a) Aldosterone | b) renin | c) Vasopressin | d) Cortisol |

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

|  |  |  |  |
| --- | --- | --- | --- |
| a) Salamander | b) Hippocampus | c) Pavo | d) Ornithorynchus |

1. Match column I and column II

|  |  |
| --- | --- |
| Column I | Column II |
| A. Podocytes | I. crystallized oxalates |
| B. Protonephridia | II. Annelids |
| C. Nephridia | III. Amphioxus |
| D. Renal calculi | IV. Filtration slits |

|  |  |
| --- | --- |
| a) A – III ; B – IV ; C – II ; D – I | b) A – III ; B – II ; C – IV ; D – I |
| c) A – IV ; B – III ; C – II ; D – I | d) A – IV ; B – II ; C – III ; D – I |

1. In living beings, ammonia is converted into urea through:

|  |  |  |  |
| --- | --- | --- | --- |
| a) ornithine cycle | b) citrulline cycle | c) fumarine cycle | d) arginine cycle |

1. Match column I and column II

|  |  |
| --- | --- |
| Column I | Column II |
| 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 corpuscles  V. PCT |

|  |  |
| --- | --- |
| a) A – V ; B – IV ; C – I ; D – II | b) A – IV ; B – I ; C – II ; D – III |
| c) A – V ; B – IV ; C – II ; D – III | d) A – V ; B – IV ; C – I ; D – III |

1. PCT and DCT are parts of :

|  |  |  |  |
| --- | --- | --- | --- |
| a) Seminiferous tubules | b) nephron | c) oviduct | d) Vas deferens |

1. Brush border is characteristic of :

|  |  |  |  |
| --- | --- | --- | --- |
| a) Neck of nephron | b) Collecting duct | c) PCT | d) all of these |

1. Match column I and column II

|  |  |
| --- | --- |
| Column I | Column II |
| A. Descending limb of Henle’s loop | I. Reabsorption of salts only |
| B. Proximal convoluted tubules | II. Reabsorption of water only |
| C. Ascending limb of Henle’s loop | III. Conditional reabsorption of sodium ion & water |
| D. Distal convoluted tubules | IV. Reabsorption of ion , water & inorganic nutrient |

|  |  |
| --- | --- |
| a) A – I ; B – III ; C – II ; D – IV | b) A – II ; B – IV ; C – I ; D – III |
| c) A – I ; B – IV ; C – II ; D – III | d) A – IV ; B – I ; C – III ; D – II |

1. Which of the following statement is correct?

a) The ascending limb of loop of henle is impermeable to water

b) The descending limb of loop of henle is impermeable to water

c) The ascending limb of loop of henle is permeable to water

d) The descending limb of loop of henle is impermeable to electrolytes

1. The part of nephron involved in active reabsorption of sodium ions is :

|  |  |
| --- | --- |
| a) DCT | b) PCT |
| c) Bowman’s capsule | d) Descending limb of Henle’s loop |

1. Which of the following causes an increase in sodium reabsorption in DCT?

|  |  |
| --- | --- |
| a) Increase in aldosterone level | b) Increase in ADH level |
| c) decrease in aldosterone level | d) decrease in ADH level |

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

|  |  |
| --- | --- |
| a) ascending limb of Henle’s loop | b) DCT |
| c) PCT | d) Descending limb of Henle’s loop |

1. Which one of the following correctly explained function of specific part of nephron?

|  |  |
| --- | --- |
| a) Henle’s loop | Most reabsorption of the major substances from the glomerular filtrate |
| b) DCT | Reabsorption of ions into the surrounding blood capillaries |
| c) Afferent arteriole | Carries the blood away from the glomerulus towards renal vein |
| d) Podocytes | Create minute spaces (slit pores) for the filtration of blood into Bowman’s capsule |

1. Injury to adrenal cortex is not likely to affect the secretion of which one of the following ?

|  |  |
| --- | --- |
| a) Aldosterone | b) both androstenedione and dehydroepi-androsterone |
| c) Adrenaline | d) Cortisol |

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

a) Descending limb of loop of Henle is impermeable to water

b) DCT is incapable of reabsorbing HCO3.

c) Nearly 99 % of the glomerular filtrate is reabsorbed by renal tubules

d) Ascending limb of loop of henle is impermeable to electrolytes

1. The ability of vertebrates to produce concentrated (hypertonic) urine usually depends upon the :

|  |  |
| --- | --- |
| a) area of Bowman’s capsule epithelium | b) length of Henle’s loop |
| c) Length of PCT | d) Capillary network forming glomerulus |

1. The basic functional unit of human kidney is :

|  |  |  |  |
| --- | --- | --- | --- |
| a) Nephron | b) Pyramid | c) Nephridia | d) Henle’s loop |

1. Under normal condition which one is completely reabsorbed in the renal tubules?

|  |  |  |  |
| --- | --- | --- | --- |
| a) Urea | b) uric acid | c) salts | d) glucose |

1. Reabsorption of useful substances from glomerular filtrate occurs in :

|  |  |  |  |
| --- | --- | --- | --- |
| a) Collecting duct | b) Loop of henle | c) PCT | d) DCT |

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

a) Maintaining hyper osmolarity towards inner medullary interstitium in the kidney

b) Secretion of erythropoietin by juxtaglomerular complex

c) Hydrostatic pressure during glomerular filtration

d) Low levels of ADH

1. Which one of the following is correctly matched pair of the given secretion and its primary role in human physiology?

|  |  |
| --- | --- |
| a) sebum – sexual attraction | b) sweat – Thermoregulation |
| c) Saliva – Tasting food | d) Tears – Excretion of salts |

1. Presence of which of the following conditions in urine are indicative of diabetes mellitus?

|  |  |
| --- | --- |
| a) Uremia & Renal calculi | b) Ketonuria & Glycosuria |
| c) renal calculi & Ketonuria | d) Uremia & Ketonuria |

1. Match column I and column II

|  |  |
| --- | --- |
| Column I | Column II |
| A. Glycosuria | I. Accumulation of uric acid in joints |
| B. Gout | II. Mass of crystallized salts in kidney |
| C. Renal calculi | III. inflammation of glomeruli |
| D. Glomerular nephritis | IV. Presence of glucose in urine |

|  |  |
| --- | --- |
| a) A – II ; B – III ; C – I ; D – IV | b) A – I ; B – II ; C – III ; D – IV |
| c) A – III ; B – I ; C – IV ; D – II | d) A – IV ; B – I ; C – II ; D – III |

1. The condition of accumulation of urea in the blood is termed as :

|  |  |  |  |
| --- | --- | --- | --- |
| a) Renal calculi | b) Glomerulonephritis | c) uremia | d) Ketonuria |

1. Podocytes are the present in :

|  |  |
| --- | --- |
| a) cortex of nephron | b) inner wall of Bowman’s capsule |
| c) outer wall of Bowman’s capsule | d) wall of glomerular capillaries |

1. Which substance is in higher concentration in blood than in glomerular filtrate?

|  |  |  |  |
| --- | --- | --- | --- |
| a) Urea | b) water | c) plasma proteins | d) glucose |

**[Class =11th]**

**Answers**

|  |
| --- |
| 1. a |
| 1. a |
| 1. c |
| 1. b |
| 1. c |
| 1. c |
| 1. d |
| 1. c |
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| 1. b |
| 1. b |
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**Topic: Excretory Products & their Elimination**

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