BIOLOGY

BOOKS - TRUEMAN BIOLOGY

EXCRETORY PRODUCTS AND THEIR ELIMINATION

Multiple Choice Ouestions

1. The reabsorption of glucose from the glomerular filtrate is due to

A. high osmotic pressure of filtrate

B. passive diffusion

C. secondary active transport across the walls of proximal convoluted part

D. filtration pressure exerted on the fluids in the loop of Henle

Answer: B

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2. Physiologically urea is produced by the action of an enzyme

A. uricase

B. urease

C. arginase

D. none

Answer: D

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3. Which of the following enzyme is produced in the kidneys ?

A. 1)Rennin

B. 2)Renin

C. 3)Uricase

D. 4)Arginase

Answer: A

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4. Glomeruli are confined to

A. Cortex

B. Medulla

C. Pelvis

D. Pyramid

Answer: A

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5. Blood fraction remaining unchanged after circulation through kidney is

A. urea and uric acid

B. urea and protiens

C. urea and glucose

D. glucose and protiens

Answer: A

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6. Osmoregulation is the control over the

A. pH of the blood

B. removal of nitrogen from the body

C. osmotic properties of cell membranes

D. concentration of salts and water in the body

Answer: A

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7. The osmoregulatory tissue in all animals is

A. muscle

B. nervous

C. epithelial

D. connective

Answer: C

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8. Osmoconformers are the animal that

A. actively control the osmotic condition of their body fluid

B. do not actively control the osmotic condition of their body fluid

C. maintain the condition of body fluid within a narrow osmotic range

D. do not change the body fluid according to the osmolarity of ambient medium

Answer: A

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9. The most important function of the mammalian kidney is the

A. control of reproduction

B. regulation of amount of protein in the blood

C. control of amount of protein in the blood

D. regulation of osmotic concentration of body fluid

Answer: C

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10. Which of these is not a general function of the kidney?

A. Regulation of blood volume

B. Regulation of vitamin-A synthesis

C. Regulation of solute concentration in the blood

D. Regulation of the pH of the extracellular fluid

Answer: B

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11. Mammalian kidney resemble contractile vacuole of Amoeba in excretion of

A. salts

B. glucose

C. excess water

D. ures and uric acid

Answer: A

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12. Consider the following statements

A. Flame cells are excretory structures in flatworms

B. Green glands are excretory organs in annelids

C. Columns of Bertin are the conical projections of renal pelvis into medulla between the renal pyramids

A. B and C incorrect

B. A and B correct

C. A and C correct

D. A, B and C correct

Answer: B

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13. In rabbit and humans, the kidney is

A. pronephric

B. metanephric

C. mesonephric

D. none of the above

Answer: B

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14. The position of kidneys is

A. 1)retroperitoneal

B. 2)interperitoneal

C. 3)intraperitoneal

D. 4)none of the above

Answer: A

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15. The retroperitoneal kidney is one covered by peritoneum on

A. dorsal side

B. ventral side

C. lateral side

D. dorsal and ventral sides

Answer: B

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16. The two kidneys lie in man

A. at the same level

B. at the level of ovaries

C. left kidney at a higher level than the right one

D. right kidney at a higher level than the left one

Answer: B

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17. The layer of fibrous connective tissue that surrounds each kidney is

A. renal sinus

B. renal pelvis

C. renal capsule

D. perirenal fat

Answer: B

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

A. A = cortex, B = nephron, C = pelvis, D = medulla, E = ureter

B. A = nephron, B = cortex, C = medulla, D = ureter, E = pelvis

C. A = nephron, B = cortex, C = medulla, D = pelvis, E = ureter

D. A = nephron, B = ureter, C = pelvis, D = medulla, E = cortex

Answer: C

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

A. hilum

B. renal pore

C. major calyces

D. minor calyces

Answer: A

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20. The cortex of the kidney contains

A. 1)hilum

B. 2)glomeruli

C. 3)renal pelvis

D. 4)renal pyramids

Answer: b

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21. The broad commencement of ureter in the mammalian kidney is

A. hilum

B. pelvis

C. calyx

D. Pyramid

Answer: D

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22. Which is common to kidney and skeleton in mammals

A. Pelvis

B. Cortex

C. Medulla

D. Calyx

Answer: B

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23. "Columns of Bertini" in the kidney of mommals are formed as the extension of

A. pelvis in ureter

B. cortex in medulla

C. medulla in cortex

D. medulla in pelvis

Answer: B

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24. Duct of Bellini opens on :

A. DCT

B. Ureter

C. renal pelvis

D. Collecting duct

Answer: B

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25. The composition of ECF is regulated by

A. brain

B. lungs

C. thyroid

D. kidneys

Answer: A

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26. Which of the following is not correct with respect to human kidney?

A. The peripheral region is called cortex and central medulla

B. Malpighian corpuscles are present in the cortex region

C. Blood leaves glomerulus through efferent venules

D. The concave part of kidney is called hilum

Answer: C

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27. Malphigian body is constituted by

A. glomerulus only

B. glomerulus and efferent vessel

C. glomerulus and afferent vessel

D. glomerulus and Bowman's capsule

Answer: D

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28. Number of nephrons of a kidney is equal to

A. the number of Bowman's capsules

B. sum of Bowman's capsules and glomeruli

C. double the number of Bowman's capsules

D. sum of Bowman's capsules and Malpighian corpuscles

Answer: D

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29. Which is true about the difference between cortical and juxtamedullary nephrons?

A. Majority of nephrons are juxtamedullary

B. Glomeruli and loops of Henle of cortiocal nephrons lie completely in cortex

C. The afferent arterioles of the juxtamedullary nephrons give rise to most of vasarecta

D. Cortical nephrons lack vasa recta

Answer: A

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30. In a glomerulus,

A. afferent arteriole has wider lumen than efferent arteriole

B. afferent arteriole has narrower lumen than efferent arteriole

C. capillaries are thicker than effernet capillaries

D. capillaries are thinner than efferent capillaries

Answer: A

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31. Blood vessel draining the glomerulus in a mammalian nephron is called

A. renal artery and is wider than the vessel entering it

B. afferent arteriole and is wider than the vessel entering it

C. efferent venule and is narrower than the vessel entering it

D. efferent arteriole and is narrower than the vessel entering it

Answer: B

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32. Inner layer of Bowman's capsule consists of

A. podocytes

B. nephridia

C. osteocytes

D. choanocytes

Answer: A

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33. Brush border is characteristic of

A. proximal convoluted tubule

B. Bowman's capsule

C. Glomerulus

D. all of the above

Answer: A

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34. In a mammalian kidney, loops of Henle are mainly located in

A. pelvis

B. cortex

C. medulla

D. major calyx

Answer: A

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35. The animal that excretes amino acids without deamination is

A. Rana

B. Unio

C. Earthworm

D. Labeo

Answer: A

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36. Which of the following is the most toxic nitrogenous waste?

A. Carbon dioxide

B. Urea

C. Uric acid

D. Ammonia

Answer: D

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37. Which of the following is first formed nitrogenous waste of vertebrate?

A. NH_3

B. Carbon dioxide

C. Alanine

D. Urea

Answer: A

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38. With respect to mode of excretion, which type of organism bony fishes are

A. Ureotelic

B. Uricotelic

C. Ammonotelic

D. Osmoconformers

Answer: C

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39. Frog's tadpoles are

A. ureotelic

B. uricotelic

C. aminotelic

D. ammonotelic

Answer: D

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40. Shifting of ammonotelism to ureotelism is seen in

A. Frog

B. Fishes

C. Birds

D. Man

Answer: A

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41. Ammonotelic animals are predominantly

A. aerial

B. aquatic

C. parasitic

D. terrestrial

Answer: B

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42. Which animal is not ammonotelic?

A. 1)Whale

B. 2)Bony Fishes

C. 3)Crocodile

D. 4)Tadpole

Answer: D

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43. Which one is the most soluble in water ?

A. Urea

B. Cholesterol

C. Uric acid

D. Fatty acids

Answer: C

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44. Nitrogenous waste products are eliminated mainly as

A. urea in both frog and tadpole

B. uric acid in frog and urea in tadpole

C. urea in frog and ammonia in tadpole

D. urea in tadpole and ammonia in frog

Answer: D

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45. Urea is the breakdown product of

A. lipids

B. glucose

C. fatty acids

D. amino acid

Answer: A

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46. Excretion in the form of uric and urates in birds is helpful in

A. conserving water

B. conserving body heat

C. eliminating excess water

D. eliminating excess body heat

Answer: B

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47. Insects are

A. ureotelic

B. aminotelic

C. ammonotelic

D. uricotelic

Answer: D

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48. Excretion of nitrogenous waster in semisolid form is found in

A. 1)amniotes

B. 2)aquatic animals

C. 3)ureotelic animals

D. 4)uricotelic animals

Answer: A

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49. Uric acid is formed from

A. glucose

B. purines

C. proteins

D. pyrimidines

Answer: D

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50. Excretion of bile pigments in the urine indicates

A. rickets

B. jaundice

C. diabetes

D. anaemia

Answer: B

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51. Removal of amino group of amino acid to transform it into keto acid is

A. transamination

B. ammonification

C. deamination

D. none of these

Answer: D

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52. In man, the urea is mainly produced in

A. 1)liver

B. 2)spleen

C. 3)kidneys

D. 4)gall bladder

Answer: D

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53. Ornithine cycle refers to the sequence of biochemical reactions taking place in the

A. liver

B. kidney

C. stomach

D. pancreas

Answer: B

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54. In living beings ammonia is converted into urea through

A. arginine cycle

B. ornithine cycle

C. fumarine cycle

D. citrulline cycle

Answer: D

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55. Ornithine cycle was discovered by

A. Ornithine

B. Calvin

C. Watson

D. Krebs and Henseleit

Answer: D

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56. The urea is formed from an amino acid

A. lysine

B. cysteine

C. arginine

D. methionine

Answer: A

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57. Amino acids participating in ornithine cycle are

A. arginine, lysine and citrulline

B. ornithine, arginine and glycine

C. arginine, citrulline and ornithine

D. ornithine, arginine and glutamic acid

Answer: B

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58. To convert ammonia into urea, the liver cells require

A. water

B. sulphur

C. oxygen

D. carbon dioxide

Answer: B

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59. Which enzyme is associated with production of urea?

A. Urease

B. Arginase

C. Aspartase

D. Glutaminase

Answer: A

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60. What is true of urea biosynthesis

A. Uric acid is starting point

B. Urea is synthesized in kidney

C. Urea is synthesized in lysosomes

D. Urea cycle enzymes are located inside mitochondria and cytosol

Answer: D

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61. At which stage of ornithine cycle arginase is used

A. ornithine $\rightarrow$ urea

B. arginine $\rightarrow$ ornithine

C. ornithine $\rightarrow$ citrulline

D. citrulline $\rightarrow$ Argininosuccinate acid

Answer: D

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62. If liver is removed, which component of blood will increase ?

A. Urea

B. Protein

C. Uric acid

D. Ammonia

Answer: D

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63. First step in urine formation is

A. Ultrafiltration

B. Tubular secretion

C. Selective secretion

D. Tubular reabsorption

Answer: A

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64. In kidney, glomerulus is involved in

A. blood filtration for urine formation

B. reabsorption of salts

C. urine collection

D. all of the above

Answer: D

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65. Which of the following will lead to an increase in glomerular fluid filtration in the kidneys?

A. An increase in the protein concentration in the plasma

B. An increase im the fluid pressure in Bowman's space

C. An increase in the glomerular capillary blood pressure

D. A decrease in the glomerular capillary blood pressure

Answer: B

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66. The glomerular filtrate i.e., the liquid collected in the cavity of Bowman's capsule is

A. plasma

B. urine

C. blood minus proteins

D. blood minus proteins and corpuscles

Answer: C

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67. Glomerular filtrate contains glucose in comparison to plasmsa

A. nil

B. equal

C. lower

D. higher

Answer: C

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68. Which of the following is most likely to cause an increase in the glomerular filtration rate?

A. Volume depletion

B. Blockage of ureter

C. Dilation of the afferent arterioles

D. Release of Aldosterone from pituitary

Answer: D

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69. If the diameter of the afferent renal arteriole is decreased and that of efferent renal arteriole is increased, the ultrafiltration will

A. be faster

B. be slower

C. not takes place

D. take place with the same speed

Answer: B

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70. When does glomerular filtration occurs in Bowman's capsule?

A. When hydrostatic pressure of blood in the glomerulus is 70 mmHg and net filtrate pressure is - 25 mmHg

B. When hydrostatic pressure of blood in the glomerulus is 70 mmHg and net filtrate pressure is - 35 mmHg

C. When hydrostatic pressure of blood in the glomerulus is 75 mmHg and net filtrate pressure is 25 mmHg

D. When hydrostatic pressure of blood in the glomerulus is 70 mmHg and net filtrate pressure is - 70 mmHg

Answer: B

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71. Ultrafiltration occurs in a glomerulus when

A. hydrostatic pressure exceeds osmotic pressure

B. osmotic pressure exceeds hydrostatic pressure

C. glomerular hydrostatic pressure exceeds capsular hydrostatic pressure

D. colloidal osmotic pressure plus capsular pressure remain less than blood hydrostatic pressure

Answer: b

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72. Total filtrate formed in 24 hours in human kidney is

A. 1 - 2 litre

B. 8.0 litre

C. 18 litre

D. 180 litre

Answer: A

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73. In human beings the capsular urine entering the Proximal Convoluted Tubule (PCT) is

A. isotonic to blood

B. hypotonic to blood

C. isotonic to seawater

D. hypertonic to blood

Answer: A

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74. Which of these will be completely reabsorbed from glomerular filtrate normal conditions in the nephrons?

A. Urea

B. Salts

C. Glucose

D. Uric acid

Answer: C

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75. Most of the glucose that is filtered through the glomerulus undergoes reabsorption in

A. distal tubule

B. collecting duct

C. proximal tubule

D. ascending limb of the loop of Henle

Answer: C

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76. Absorption of Na^+ and K^+ ions does not occur in : –

A. Loop of Henle

B. Bowman's capsule

C. Distal convoluted tubule

D. Proximal convoluted tubule

Answer: C

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

A. PCT

B. DCT

C. Henle's loop

D. Glomerulus

Answer: A

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

A. The urine will be more dilute

B. There will be no urine formation

C. The urine will have more concentration

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

Answer: C

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79. Part of nephron impermeable to salt is

A. descending limb of loop of Henle

B. ascending limb of loop of Henle

C. Distal convoluted tubule

D. collecting ducts

Answer: C

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80. Which part of nephron is impermeable to water

A. distal tubule

B. collecting duct

C. proximal tubule

D. ascending limb of Henle's loop

Answer: A

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81. Reabsorption of water through the tubules mainly occurs by

A. osmosis

B. active transport

C. facilitated diffusion

D. carrier transport

Answer: A

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82. ADH will be released from the posterior pituitary when there is a decrease in plasma

A. pH

B. volume

C. sodium concentration

D. osmotic pressure

Answer: D

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83. In deficiency of ADH, rate of micturition

A. 1)increases

B. 2)decreases

C. 3)remains the same

D. 4)none of these

Answer: D

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84. Decreased level of ADH results in the prodction of

A. isotonic urine

B. hypertonic urine

C. hypotonic urine

D. none of these

Answer: C

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85. Urine is concentrated with the help of

A. ADH only

B. Aldosterone only

C. Both of these

D. Urochrome

Answer: C

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86. In the renal tubules the permeabillity of the distal convoluted tubule and collecting duct to water is controlled by

A. renin

B. calcitonin

C. vasopressin

D. growth hormone

Answer: C

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87. Vasopressin stimulates reabsorption of water and reduction of urine secretion. Hence vasopressin is otherwise called

A. angiotensin

B. neurotransmitter

C. antidiuretic hormone

D. growth regulating substance

Answer: D

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88. Diabetes insipidus is due to

A. excess of insulin

B. deficiency of insulin

C. hyposecretion of hypothalamic hormone

D. hypersecretion of pituitary hormone

Answer: C

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89. Sodium reabsorption from the distal tubule will be increased if there is an increase in

A. ADH

B. plasma volume

C. mean arterial pressure

D. plasma potassium concentration

Answer: C

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90. Which is mismatched?

A. PCT - Absorption of Na^+ and K^+

B. DCT - Absorption of glucose

C. Bowman's capsule - Glomerular filtration

D. Loop of Henle - Absorption of water

Answer: b

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91. The juxtaglomerular cells of the _____ and the macula densa cells of the _____ form the juxta-glomerular apparatus.

A. 1)afferent arteriole, proximal convoluted tubule

B. 2)efferent arteriole, proximal convoluted tubule

C. 3)afferent arteriole, distal convoluted tubule

D. 4)vasa recta, distal convoluted tubule

Answer: C

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92. Which one is an important consitiuent of renin angiotensinogen-aldosterone system?

A. JGA cell

B. Plasma cell

C. Glomerulus

D. Erythropoietin

Answer: 1

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93. Aldosterone stimulates sodium reabsorption and potassium secretion mainly in

A. descending limb of the loop of Henle

B. ascending limb of the loop of Henle

C. proximal convoluted tubule

D. distal convoluted tubule

Answer: C

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94. Renin-angiotensin pathway mainly controls

A. ultrafiltration

B. cardiac output

C. blood pressure

D. glucose reabsorption

Answer: D

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95. The function of renin is

A. degradation of angiotensinogen

B. stimulation of corpus luteum

C. to reduce blood pressure

D. vasodilation

Answer: C

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96. The function of angiotensin II is

A. to enhance the water and sodium reabsorption from renal tubule

B. stimulation of adrenal medulla to secrete aldosterone

C. to decrease the heartbeat and dilate arterioles

D. all of the above

Answer: C

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97. Kidney regulate the amount of

A. salts

B. proteins

C. enzymes

D. hormones

Answer: a

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98. Which of the following subtances is actively secreted into glomerular filtrate of the kidney tubule?

A. Glucose

B. K^+

C. Amino acids

D. Chloride ions

Answer: D

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99. Match the excretory functions of Section I with the parts of the excretory system in Section II. Choose the correct

combination from among the answers given

Section I (Functions)	Section II (Parts of excretory systems)
A Ultra filtration	1. Henle's loop
B Concentration of urine	2. Ureter
C Transport of urine	3. Urinary bladder
D Storage of urine	4. Malpighian corpuscle
	5. Proximal convoluted tubule

A. A = 4, B = 1, C = 2, D = 3

B. A = 4, B = 3, C = 2, D = 1

C. A = 5, B = 4, C = 1, D = 3

D. A = 5, B = 4, C = 1, D = 2

Answer: C

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100. Formation of hypertonic urine is mediated through

A. eating salt free diet

B. counter-current system

C. increased water intake

D. having small loop of Henle

Answer: D

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101. The yellow colour of urine is due to the presence of

A. 1)urea

B. 2)bilirubin

C. 3)uric acid

D. 4)Urochrome

Answer: A

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102. The amount of urine output per day by a normal human beings is

A. 4-5 L

B. 1-2 L

C. 3-4 L

D. 500-750 mL

Answer: D

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103. Healthy human does not excrete out in his urine

A. 1)Glucose

B. 2)Uric acid

C. 3)Creatinine

D. 4)B-complex vitamins

Answer: D

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

A. Renal vein

B. Hepatic vein

C. Hepatic artery

D. Hepatic portal vein

Answer: B

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105. Which blood vessel contains the least amount of urea ?

A. Renal vein

B. Renal artery

C. Pulmonary vein

D. Hepatic portal vein

Answer: D

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106. A substance not secreted by renal tubule

A. Glucose

B. Para-aminohippuric acid

C. Ammonia

D. Potassium ions

Answer: A

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107. The urine on standing gives a pungent smell. It is due to conversion of

A. uric acid into ammonia by ornithine cycle

B. urea into ammonia by bacteria

C. amino acids into ammonia

D. all of the above

Answer: B

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

A. anuria

B. ketouria

C. hematuria

D. creatinine

Answer: C

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109. Diuresis is a condition , which is characterized by

A. increases in urine volume

B. decrease in urine volume

C. increased glucose excertion

D. decrease in electrolyte balance

Answer: A

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110. Which of the following will not lead to a diuresis?

A. Excessive sweating

B. Deficiency of ADH

C. Deficiency of insulin

D. Excessive water intake

Answer: C

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111. Which one of the following statements is false?

A. Presence of glucose in urine is glycosuria

B. Presence of excess urea in blood is uraemia

C. Presence of albumin in urine is albuminuria

D. Presence of ketose sugar in urine is ketonuria

Answer: B

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112. Presence of RBC in urine is called

A. pyuria

B. glycosuria

C. haematuria

D. albuminuria

Answer: C

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113. Glycosuria is the condition, where a man

A. eats more sugar

B. sugar is excreted in faeces

C. has low sugar level in blood

D. excretes sugar in urine

Answer: B

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114. Glomerular filtrate is

1. formed continuously by the process of ultrafiltration occurring at Malpighian corpuscles, in which the blood cells and the colloidal macromolecules are not allowed to pass across the filtering surface

2. the electrolyte free fluid collected within the lumen of Bawman's capsule

3. the protein free fluid collected within the lumen of Bowman's capsule

4. formed by the process of selective reabsorption

A. 1, 2 and 3 are correct

B. 1 and 2 are correct

C. 2 and 4 are correct

D. 1 and 3 are correct

Answer: D

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115. Proximal convoluted tubule (PCT) is lined with

A. 1)cuboidal epithelium

B. 2)columnar epithelium

C. 3)simple squamous brush border epithelium

D. 4)simple cuboidal brush border epithelium

Answer: C

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116. Renal fluid isotonic to cortical fluid and blood occurs in

A. collecting duct and ascending limb

B. descending limb and collecting duct

C. distal convoluted tubule and ascending limb

D. Proximal convoluted tubule and distal convoluted tubule

Answer: A

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117. Which of the following is recovered in the collecting duct of the nephron?

A. Potassium

B. Water

C. Glucose

D. Proteins

Answer: B

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118. Identify the correctly matched pair

{:1. Uremia- Excessive amount of urea in blood 2.

Hyperglycemia- Excess glucose in blood 3. Absence of factor VIII- Hemophilia 4. X-linked disorder- Glycosuria

A. 1 and 2 are correct

B. 2 and 4 are correct

C. 1 and 3 are correct

D. 1,2 and 3 are correct

Answer: A

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119. When a litre of water is introduced in human blood

A. BMR increases

B. BMR decreases

C. RBCs collapse and urine production decreases

D. RBCs collapse and urine production increases

Answer: A

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120. Which of the following is removed from the filtrate at loop of Henle?

A. Water

B. Glucose

C. Amino acid

D. Hormones

Answer: A

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121. The characteristic that is shared by urea. Uric acid and ammonia is/are

(A) They are nitrogenous wastes

(B) The all need very large amount of water for excretion

(C) They are all equally toxic

(D) They are produced in the kidneys

A. A only

B. A and C

C. A and D

D. A, C and D

Answer: A

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122. Select the incorrect statement regarding mechanism of urine formation in man.

A. Tubular secretion takes place in the PCT also

B. Aldosterone induces greater reabsorption of sodium

C. The counter current systems contrivute in diluting the urine

D. The glomerular filtration rate is about 125 mL per minute

Answer: C

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123. Which one of the following is correct with reference to haemodialysis?

A. The dialysis unit has a coiled cellophone tube

B. Anti-heparin is added prior to haemodialysis

C. Nitrogenous wastes are removed by active transport

D. Blood is pumped back through a suitable artery after haemodialysis

Answer: D

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124. The average quantity of urea excreted in urine by man per day is

A. 1-5 g

B. 25-30 g

C. 1-1.5 L

D. 80g

Answer: A

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125. Select the correct statement

A. the ascending limb of the Henle's loop extends as the DCT

B. the Juxtamedullary nephrons have reduced Henle's loop

C. vasa recta is well developed in cortical nephrons

D. the glomerulus encloses the Bowman's capsule

Answer: A

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126. The condition where urea accumulates in blood is

A. glycosuria

B. uraemia

C. Ketonuria

D. acidosis

Answer: A

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127. Glucose and amino acids are reabsorbed in the

A. distal tubule

B. collecting duct

C. loop of Henle

D. proximal tubule

Answer: C

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128. The Bowman's capsule is mainly found in

A. cortex

B. medulla

C. renal pelvis

D. renal pyramids

Answer: A

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129. What is the correct sequence in Ornithine Cycle of urea formation?

(i) Ornithine

(ii) Arginine

(iii) Arginosuccinic acid

(iv) Urea

(v) Citrulline

Select the correct answer using the codes given below

A. (i), (ii), (iii), (v), (iv)

B. (i), (v), (iii), (ii), (iv)

C. (i), (v), (ii), (iii), (iv)

D. (i), (iii), (v), (ii), (iv)

Answer: B

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130. A fluorescent dye is utilized to 'tag' antidiuretic hormone receptors. The greatest concentration of dye is expected in which of the following structures?

A. Proximal convoluted tubule

B. Renal capillaries

C. Loop of Henle

D. Collecting duct

Answer: B

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131. All of the following are true except

A. Renin is secreted by Juxta glomerular cell

B. Juxta-glomerular cells are present in afferent arterioles

C. Renin causes conversion of Angiotensino-gen to Angiotensin

D. Angiotensin II is a potent vasodilator

Answer: D

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132. Which of the following is not secreted by the kidney?

A. Renin

B. Angiotensin I

C. Erythropoietin

D. 1, 25 Dihydroxycholecalecalciferol

Answer: B

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133. All of the following are true about actions of - ANF except

A. decreased blood pressure

B. causes vasoconstriction

C. decreased sodium reabsorption

D. increased sodium excretion

Answer: B

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134. A person stranded in the desert faces the risk of severe dehydration. Which of the following will be maximally stimulated to prevent water loss?

A. Anterior and posterior pituitary

B. Adrenal cortex and thyroid gland

C. Hypothalamus and adrenal gland

D. Adrenal gland and anterior pituitary

Answer: A

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135. Find out the correct statement about the loop of Henle

A. The descending limb is permeable to electrolytes

B. The descending limb is permeable to water

C. The ascending limb is permeable to water

D. The ascending limb is impermeable to electrolytes

Answer: B

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136. Find the correct match of site and function of nephron

A.

SITE	FUNCTION
DCT	Reabsorption of Na^+ and K^+ from filtrate

B.

SITE	FUNCTION
Descending of loop of Henle	Impermeable to water

C.

SITE	FUNCTION
PCT	HCO_3^- absorption of filtrate

D.

SITE	FUNCTION
DCT	Massive reabsorption of H_2O & H^+, K^+ ions

Answer: B

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137. There are three organisms A, B, C.

A has to excrete Urea

B has to excrete Uric acid

C has to excrete Ammonia

Which out of these 3 organisms will have the maximum urine output?

A. C will produce more urine than B

B. B will produce more urine than C

C. B will produce more urine than A

D. C will produce less urine than A

Answer: A

138. Find the correct statement regarding human kidney

A. The Bowman's capsule, PCT and DCT form the renal corpuscle.

B. Majority of nephrons are juxtamedullary nephrons

C. The kidneys lie between T_{12} and L_3 vertebral level

D. The coloumns of Bertini lie in the outer renal cortex area

Answer: C

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139. Consider the following statements

For osmoregulation in aquatic medium

1. A freshwater fish has to drink water continuously

2. A marine bony fish has to drink water continuously

3. A freshwater fish produces copious urine, which is hypo-osmotic to blood

4. A marine fish produces scanty urine, which is hypo-osmotic to blood

Which of the statements given above is/are correct?

A. 1 only

B. 4 only

C. 1 and 4

D. 2 and 3

Answer: C

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140. The human kidney : —

A. is responsible for the storage of nutrients such as glycogen

B. produces more dilute urine when the collecting duct become less permeable to water

C. responds to antidiuretic hormone by increasing urine (water) output

D. get rid of urea from the body by absorbing it into the descending arm of the loop of Henle.

Answer: D

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141. While doing some experiment with Amoeba proteus in a culture medium, it was found that the contractile vacuole of the protozoan disappeared although the other organelles showed normal activity. This must have been most probably due to

A. change in the temperature of the medium

B. change in the pH of the medium

C. dilution of the medium with tap water

D. dilution of the medium with sea water

Answer: D

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142. The nephron is a hollow, convoluted tube of cells. It is engineered to concentrate urine by removing water at which of the following sites?

I. Proximal convoluted tubule

II. Descending limb of the loop of Henle

III. Ascending limb of the loop of Henle

A. I only

B. II only

C. I and II only

D. I, II and III

Answer: C

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143. A substance is present in concentration of 2 mg % in the afferent arteriole and zero mg % in efferent. Thus true about the substance is

A. impermeable in loop of Henle

B. absorbed in PCT

C. secreted in cortical nephrons

D. freely filtered in glomerulus

Answer: D

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144. NaCl is more in the interstitial fluid of renal medulla than of cortex because of

A. cortical loss of Na^+

B. counter current mechanism

C. vasa - recta have increased blood

D. proximal convoluted tubule is more permeable to Na^+

Answer: B

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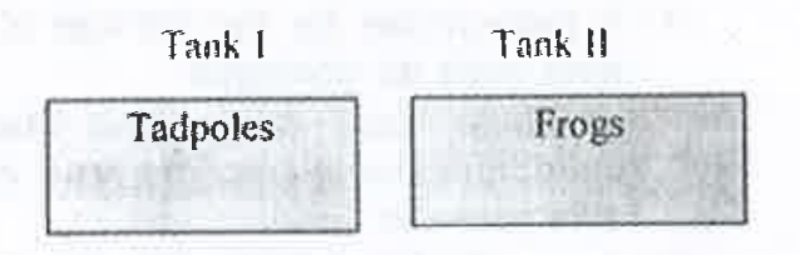
145. Water from the two tanks shown in the diagram was tested 3 hours after they were stocked with indicated animals. The predominant nitrogenous waste detected in Tank I and

Tank II respectively would be



A. Urea in both

B. ammonia in both

C. ammonia and urea

D. urea and uric acid

Answer: C

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146. Antidiuretic hormone has the most abundant receptors in the kidneys of

A. frogs in tropical pond

B. rabbits in a grass land

C. spotted deer in moist evergreen forest.

D. Kangaroo rats in deserts

Answer: D

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147. All of the following are true except

A. Renin is secreted by Juxta glomerular cells

B. A fall in GFR can activate the JG cells to release renin which can stimulate the glomerular blood flow.

C. It releases renin which converts angiotensinogen to angiotensin II

D. Angiotensin II is a potent vasoconstrictor

Answer: C

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148. Which of the following statements is correct?

A. ADH- prevents conversion of angiotensinogen in blood to angiotensin

B. Aldosterone - facilitates water reabsorption

C. ANF- enhances sodium reabsorption

D. Renin - causes vasodilation

Answer: B

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149. The pH of human urine is approximately

A. 1.5

B. 7

C. 6

D. 7.5

Answer: C

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150. Which one of the following statements is incorrect?

A. Birds and land snails are uricotelic animals

B. Mammals and frogs are ureotrlic animals

C. Aquatic amphibians and aquatic insects are ammonotelic animals

D. Birds and reptiles are ureotelic

Answer: D

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151. Which of the following pairs is wrong ?

A. Uricotelic - - - - - - - - - Birds

B. Ureotelic ---------- Insects

C. Ammonotelic - - - - - - - - Tadpole

D. Ureotelic - - - - - - - Elephant

Answer: B

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152. Which one of the following statements is incorrect

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

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

C. Glomerulus alongwith Bowman's capsule is called the renal corpuscle

D. Renal corpuscle, proximal convoluted tubule (PCT) and distal convoluted tubule (DCT) of the nephron are situated in the cortical region of kidney.

Answer: B

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153. Match the terms given in Column I with their physiological processes given in Column II and choose the

correct answer

Column I		Column II	
A.	Proximal convoluted tubule	i.	Formation of concentrated urine
B.	Distal convoluted tubule	ii.	Filtration of blood
C.	Henle's loop	iii.	Reabsorption of 70-80% of electrolytes
D.	Counter-current mechanism	iv.	Ionic balance
E.	Renal corpuscle	v.	Maintenance of concentration gradient in medulla

A. A - (iii), B - (v), C - (iii), D - (ii), E - (i)

B. A - (iii), B - (iv), C - (i), D - (v), E - (ii)

C. A - (i), B - (iii), C - (ii), D - (v), E - (iv)

D. A - (iii), B - (i), C - (iv), D - (v), E - (ii)

Answer: B

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154. Match the abnormal conditions given in Col- umn A with their explanations, given in Col- umn B and Choose the correct option

	Column A		Column B
A.	Glycosurea	i.	Accumulation of uric acid in joints
B.	Renal calculi	ii.	Inflammation in glomeruli
C.	Glomerular nephritis	iii.	Mass of crystallised salts within the kidney
D.	Gout	iv.	Presence of glucose in urine

A. A - (i), B - (iii), C - (ii), D - (iv)

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)

Answer: C

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155. Dialysing 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

Answer: C

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156. Which one of the following four secretions is correctly matched with its source, target and nature of action?

	SECRETION	SOURCE	TARGET	ACTION
A	*Gastrin*	Stomach lining	Oxyntic cells	Production of HCl
B	*Inhibin*	Sertoli cells	Hypothalamus	Inhibition of secretion of gonadotropin releasing hormone.
C	*Enterokinase*	Duodenum	Gall bladder	Release of bile juice.
D	*Atrial Natriuretic Factor(ANF)*	Sinu atrial node (SAN)	Juxtaglom — erular apparatus (JGA)	Inhibition of release of renin

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

A. When water is not available camels do not produce urine but store urea in tissues.

B. Salmon fish excretes lot of stored salt through gill membrane when in fresh water.

C. Paramoecium discharges concentrated salt solution by contractile vacuoles

D. The body fluids of fresh water animals are generally hypotonic to surrounding water

Answer: A

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158. Find out the correct statement about the loop of Henle

A. The descending limb is permeable to electrolytes

B. The descending limb is permeable to water

C. The ascending limb is permeable to water

D. The ascending limb is impermeable to electrolytes

Answer: B

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159. A terrestrial animal must be able to

A. actively pump salts out through the skin

B. excrete large amounts of salts in urine

C. excrete large amounts of water in urine

D. conserve water

Answer: D

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

A. CO_2 and ammonia

B. Ammonia and urea

C. CO_2 and urea

D. Urea and urine

Answer: A

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

A. 20mm Hg

B. 50 mm Hg

C. 75mm Hg

D. 30mm Hg

Answer: A

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162. Earthworms are commonly

A. Ureotelic when plenty of water is available

B. Uricotelic when plenty of water is available

C. Uricotelic under conditions of water scarcity

D. Ammonotelic when plenty of water is available

Answer: D

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163. 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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164. What will happen if the stretch receptors of the urinary bladder wall are totally removed ?

A. Urine will continue to collect normally in the bladder

B. There will be no micturition

C. Urine will not collect in the bladder

D. Micturition will continue

Answer: B

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

A. Cockroach

B. Frog

C. Man

D. Earthworm

Answer: A

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

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

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

C. Distal convoluted tubule is incapable to reabsorbing HCO_3^-

D. Nearly 99 per cent of the glomerular filtrate is reabsorbed by the renal tubules

Answer: D

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167. The principal nitrogenous excretory compound in humans is synthesized

A. in the liver, but eliminated mostly through kidneys

B. in kidneys but eliminated mostly through liver

C. in kidneys as well as eliminated bu kidneys

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

Answer: A

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168. Consider the following four statements (i-iv) regarding kidney transplant and select the two correct ones out of these

(i) Even if a kidney transplant is proper the recipient may need to take immuno-suppressants for a long time

(ii) The cell-mediated immune response is responsible for the graft rejection

(iii) The B-lumphocytes are responsible for rejection of the

graft

(iv) The acceptance or rejection of a kidney transplant depends on specific interferons

The correct statements are

A. (i) and (ii)

B. (ii) and (iii)

C. (iii) and (iv)

D. (i) and (ii)

Answer: A

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

A. Peritubular capillaries

B. Convoluted tubules

C. Collecting ducts

D. Loop of Henle

Answer: B

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

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

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

C. Distal convoluted tubule : reabsorption of K^+ ions tnto the surrounding blood capillaries

D. Afferent arteriole : carries the blood away from the glomerulus towards renal vein

Answer: A

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

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

B. Exposure to cold temperature stimulates ADH release

C. An increase in glomerular blood flow stimulate formation of Angiotensin II

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

Answer: A

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172. The maximum amount of electrolytes and water (70-80 percent) form the glomerular filtrate is reabsorbed in which part of the nephron?

A. Distal convoluted tubule

B. Proximal convoluted tubule

C. Descending limb of loop of Henle

D. Ascending limb of loop of Henle

Answer: B

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173. Which one of the following characteristics is common both in human and adult frogs?

A. Nucleated RBCs

B. Ureotelic mode of excretion

C. Four-chambered heart

D. Internal fertilisation

Answer: B

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

A. Adrenal medulla to release adrenaline

B. Posterior pituitary to release vasopressin

C. Juxta glomerular cells to release renin

D. Adrenal cortex to release aldosterone

Answer: C

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175. Kidneys perform all the functions except

A. filtration of blood

B. regulation of B.P.

C. secretions of antibodies

D. regulation of pH in body fluid

Answer: C

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176. A healthy adult human excretes out (on the average) how many grams of urea per day?

A. 25 - 30 g

B. 40 - 50 g

C. 10 - 15 g

D. None of the above

Answer: A

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

A. Electrolytes

B. Proteins

C. Nitrogenous wastes

D. All the above

Answer: C

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178. The Juxta glomerular cells of kidney produce a peptide hormone called

A. Gastrin

B. Secretin

C. Erythropoietin

D. Estradiol

Answer: C

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179. Erythropoietin stimulates

A. Osmoregulation

B. Formation of RBC

C. Reduces blood pressure

D. Gastric inhibitory peptide

Answer: B

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180. Urea synthesis takes place primarily in liver because

A. NH_3 and CO_2 are present in liver only

B. hormone ADH is found in liver only

C. enzyme arginase is present in liver only

D. kidney is smaller than liver

Answer: C

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181. The substance present in higher concentration in blood than glomerular filtrate

A. Plasma proteins

B. Urea

C. Water

D. Glucose

Answer: A

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

A. gets collected in the renal pelvis

B. is lost as sweat

C. is absorbed into the blood

D. is stored in the urinary bladder

Answer: C

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183. Vasa recta and network of blood capillaries occur in association with

A. Digestive system

B. Liver lobule

C. Renal tubules

D. Skin

Answer: C

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184. Which is not part of glomerular ultrafiltrate ?

A. Bowman's capsule

B. RBC

C. Amino acids

D. Minerals

Answer: B

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185. Choose the animals which are not ureotelic ?

A. Tadpole

B. Crab

C. Labeo

D. All of these

Answer: D

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186. ADH deficiency shows the following condition

A. 1)only polydipsia

B. 2)polyuria

C. 3)polydipsia and polyuria

D. 4)glycosuria

Answer: C

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187. Glucose and amino acids are reabsorbed in

A. proximal tubule

B. distal tubule

C. collecting duct

D. loop of Henle

Answer: A

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188. The functional unit of kidney where urine is actually produced is the

A. neuron

B. axon

C. glomerulus

D. nephron

Answer: D

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189. Which of the following glands does not help in excretion

A. Liver

B. Sweat glands

C. Pancreas

D. Both (1) and (3)

Answer: C

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190. Which of the following is excreted in human urine ?

A. Ammonia

B. Urea

C. uric acid

D. amino acid

Answer: B

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

A. Juxta glomerular cells to release renin

B. Adrenal cortex to release aldosterone

C. Adrenal medulla to release adrenaline

D. Posterior pituitary to release vasopressin

Answer: A

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192. Loop of Henle is found in

A. lung

B. liver

C. neuron

D. nephron

Answer: D

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193. Which of the following causes an increase in sodium reabsorption in the distal convo- luted tubule?

A. Decrease in antidiuretic hormone levels

B. Increase in aldosterone levels

C. Increase in antidiuretic hormone levels

D. Decrease in aldosterone levels

Answer: B

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

A. Caffeine

B. Renin

C. Atrial-natriuretic factor

D. Alcohol

Answer: B

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

A. more concentrated urine

B. no change in qualit and quantity of urine

C. no urine formation

D. more diluted urine

Answer: D

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196. Human urine is usually acidic because

A. the sodium transporter exchanges one hydrogen ion for each sodium ion, in peritbular capillaries.

B. excreted plasma proteins are acidic.

C. potassium and sodium exchange generates acidity.

D. hydrogen ions are actively secreted into the filtrate

Answer: D

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

A. Dorsal Aorta

B. Hepatic Vein

C. Hepatic Portal Vein

D. Renal Vein

Answer: B

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

A. Distal convoluted tubule

B. Proximal convoluted tubule

C. Bowman's capsule

D. Descending limb of Henle's loop

Answer: A

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199. Which of the following statements 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 permeable to electrolytes

Answer: A

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200. A decrease in blood pressure / volume will not ca use the release of

A. Renin

B. Atrial Natriuretic Factor

C. Aldosterone

D. ADH

Answer: B

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