



BIOLOGY

BOOKS - CENGAGE BIOLOGY

EXCRETION IN PLANTS AND ANIMALS

Question

1. Name the organ of the excretory system, which stores urine before its removal from the body.



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2. In which part of the nephron does filtration occur?



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3. What happens to the useful substances that get filtered into the renal tubule?



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4. Identify the process involved in the functioning of the artificial kidney.

A. Renal transport

B. Dialysis

C. Renal failure

D. Catalysis

Answer:



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Mandatory Exercise

1. Circle the substances in the list below that are not found in the fluid that has filtered through into the Bowman's capsule of a healthy human?

Water

Red blood cells

Amino acids

Urea

Sodium chloride

Glucose

Proteins

White blood cells



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2. Circle the substances in the list below that are not found in the urine of a healthy human?

Antidiuretic hormone

Water

Urea

Red blood cells

Mucus

Glucose

Proteins

Sodium chloride

White blood cells



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3. Which of the following metabolic wastes removed from the lungs?

(a) CO_2

(b) water

(c) both A and B

(d) Urea



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4. Some of these are not examples of homeostasis: (circle those that are not)

Sweating, erection of hairs and capillary dilation/contraction to control the body temperature



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5. Some of these are not examples of homeostasis: (circle those that are not)

Adjusting the rate of breathing to remove carbon dioxide from the blood



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6. Some of these are not examples of homeostasis: (circle those that are not)

Production of concentrated or dilute urine to

maintain the concentration of water and salts
in the blood within a narrow range



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7. Some of these are not examples of
homeostasis: (circle those that are not)

Blood clotting to prevent loss of blood



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8. Some of these are not examples of homeostasis: (circle those that are not)

Reproduction to produce the next generation



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9. Some of these are not examples of homeostasis: (circle those that are not)

The action of the hormone insulin to keep the level of glucose in the blood within a narrow range





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10. Some of these are not examples of homeostasis: (circle those that are not)

Various mechanisms to keep the pH of the blood within a narrow range

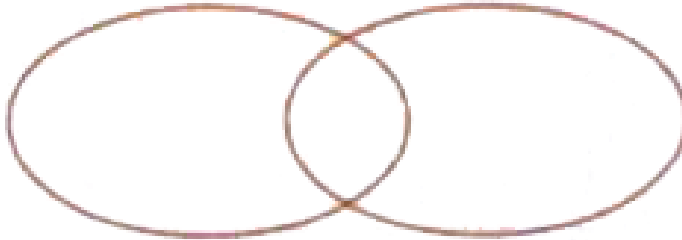


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11. Complete the venn diagram

Filteration

Reabsorption



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12. The other organs of excretion are the lungs, skin and liver. What roles do they play in eliminating wastes from the body?



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13. Differentiate between the following:

Ureotelism and uricotelism



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14. How is outer surface of skin made waterproof and oily?



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15. Assertion: Nephritis is the inflammation of kidney tissue.

Reason: Nephritis is usually caused by a viral infection.

A. if both A and R are true, R is the correct explanation of A.

B. if both A and R are true but R is not the correct explanation of A.

C. if A is true but R is false.

D. if both A and R are false.

Answer: C



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16. Loop of Henle is found in

A. lung

B. liver

C. neuron

D. nephron

Answer: D



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17. Give scientific reason:

Frequency of urination increases after consuming alcoholic beverages.



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18. Give scientific reason:

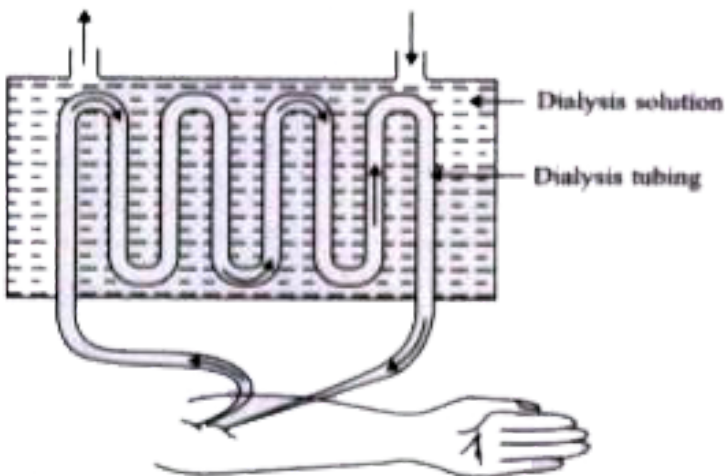
It is not advisable to have lot of water after heavy sweating.



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Consolidated Exercise

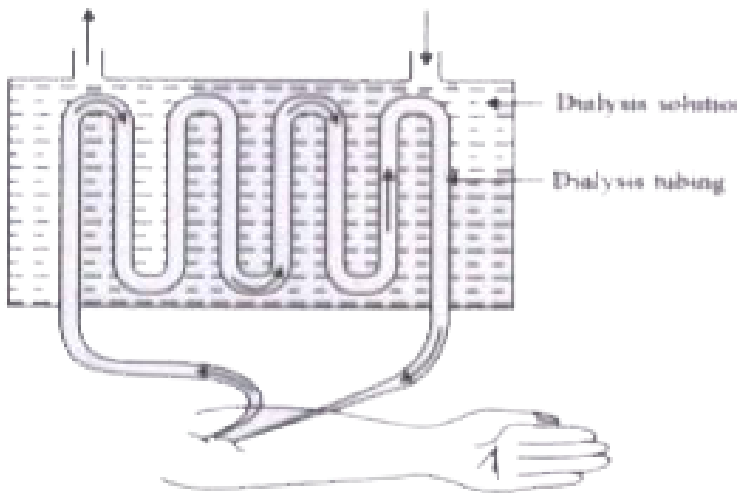
1. The figure below shows a simplified version of a kidney dialysis machine.



What do you notice about the direction of the flow of blood and the dialysis solution?

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2. The figure below shows a simplified version of a kidney dialysis machine.

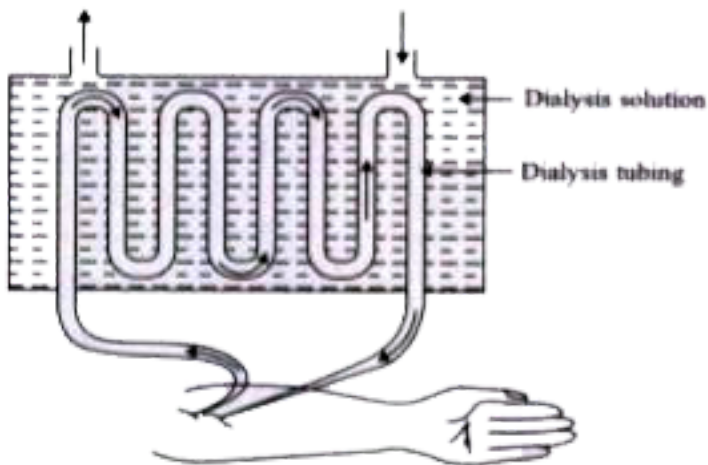


Explain why red blood cells remain inside the dialysis tubing.



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3. The figure below shows a simplified version of a kidney dialysis machine.

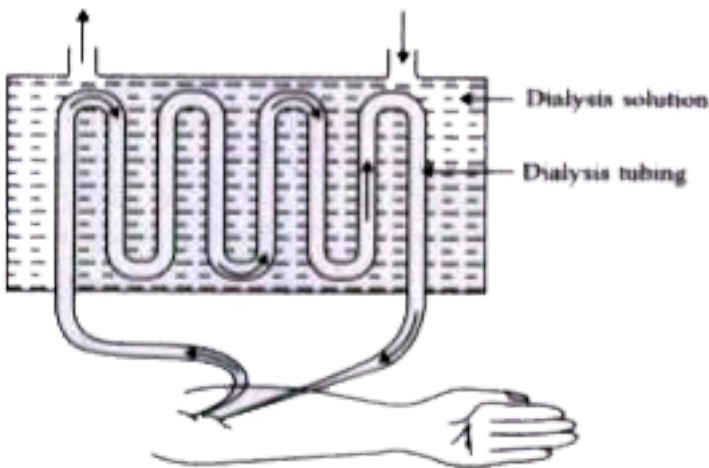


People who use kidney machines need a

special diet. Suggest on difference between their diet and a normal diet.

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4. The figure below shows a simplified version of a kidney dialysis machine.



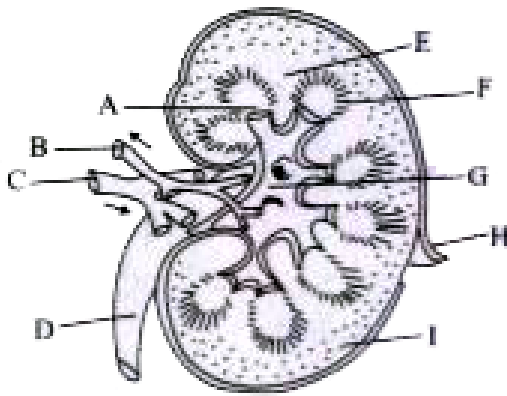
If a person suffers from low blood pressure,

this may lead to kidney failure. Explain how this might happen.



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5. Match the structure with the correct letter from the diagram at the right.

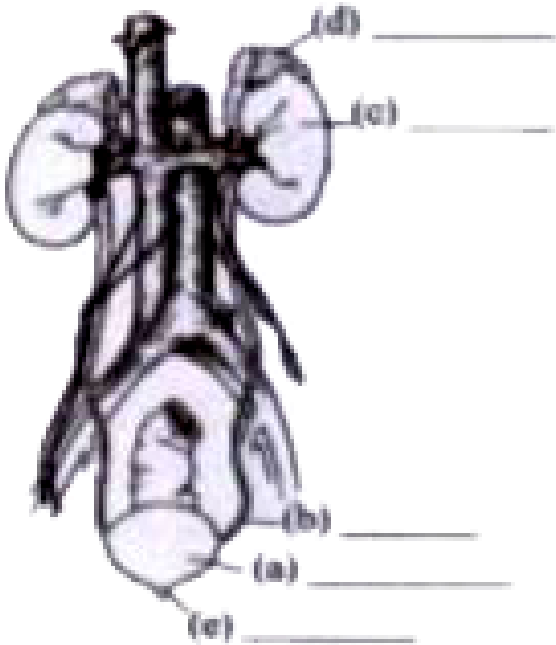


- _____ Minor calyx
- _____ Renal artery
- _____ Renal capsule
- _____ Renal column
- _____ Renal cortex

- _____ **renal pelvis**
- _____ **Renal pyramid**
- _____ **Renal vein**
- _____ **Ureter**

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6. Study the given figure of excretory system of man carefully and answer the following questions:

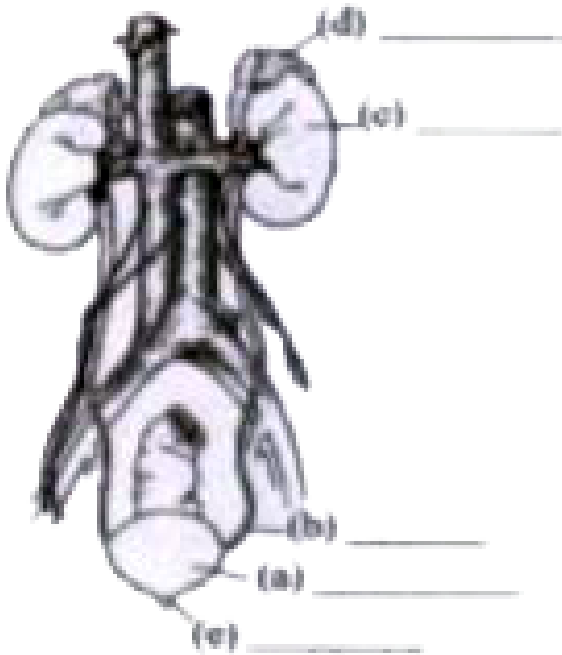


Name the parts labeled as (a), (b), (c), (d) and (e)



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7. Study the given figure of excretory system of man carefully and answer the following questions:



Give one major function of each of these parts.



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8. Match with one or more than one correct answer

Column A	Column B
(a) Sebum	(i) Bony fish
(b) Ammonotelism	(ii) Urinary bladder
(c) Bowman's capsule	(iii) Skin
(d) Micturition	(iv) Unio
	(v) Renal tubule
	(vi) Glomerulus



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Consolidated Exercise Mcq

1. Excretion is

A. removal of substances not required by
body

B. removal of useless substances and
substances present in excess

C. formation of substances having some
role in body

D. all of the above

Answer: B



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2. The presence of ADH causes an individual to excrete

A. more salt

B. less water

C. more water

D. less salt

Answer: B



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3. Which of these materials is/are Not filtered from the blood at the glomerulus?

A. Water

B. Urea

C. Protein

D. Sodium ions

Answer: A::B::D



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4. In humans, water is

A. found in the glomerular filtrate

B. reabsorbed from the Collecting duct

C. in the urine

D. All of these

Answer: A::B::C::D



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5. Which of the following is/are the excretory product/s of plants?

A. CO_2

B. Latex

C. O_2

D. All are correct

Answer: A::B::C::D



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6. What is the fast flowing of liquid from the injured or cutting parts of the plants called?

A. Transpiration

B. Guttation

C. Bleeding

D. Clotting

Answer: C



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7. If a patient is put on dialysis, he is most likely suffering from a severe ailment of the

A. Circulatory system

B. Respiratory system

C. Excretory system

D. Digestive system

Answer: C



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8. The procedure of cleaning the blood of a person by using a kidney machine is known as

A. Ketolysis

B. Hydrolysis

C. Dialysis

D. Photolysis

Answer: C



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9. The excretory unit in the human excretory system is called

A. Nephron

B. Neuron

C. Nephridia

D. Kidney

Answer: A



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10. The largest amounts of nitrogen is excreted from a mammalian body by

A. Breath

B. Sweat

C. Urine

D. Faeces

Answer: C



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11. Excretory product of birds and reptiles is

A. Urea

B. Uric acid

C. Ammonia

D. Guano

Answer: B



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12. Which one is totally reabsorbed in a renal tube?

A. Na

B. K

C. H_2O

D. $C_6H_{12}O_6$

Answer: D



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13. The mechanism of urine formation in nephron involves

A. Ultrafiltration

B. Reabsorption

C. Secretion

D. All of these

Answer: C



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14. Occurrence of excess urea in blood due to kidney failure is

A. Urochrome

B. Uremia

C. Uricotelism

D. Ureotelism

Answer: B



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15. Loop of Henle is found in

A. Cortex

B. Medulla

C. Pelvis

D. Ureter

Answer: B



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16. Separation of amine group from an amino acid is

A. Ammonia

B. Lysis

C. Digestion

D. Deamination

Answer: D



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17. Presence of RBC in urine is called

- A. Anuria
- B. Haematuria
- C. Glycosuria
- D. Ketonuria

Answer: B



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18. In Prawn, excretion is carried out by

A. Nephrons

B. Malpighian tubules

C. Flame cells

D. Green glands

Answer: B



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19. The blood vessel containing the least amount of urea is

A. Hepatic urea

B. Renal vein

C. Renal portal vein

D. Renal artery

Answer: B



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20. Uric acid is excreted in

A. Frog

B. Rabbit

C. Man

D. Cow

Answer: D



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21. A man has taken large amount of protein in his diet .He will excrete more of :

A. Urea

B. Uric acid

C. Sugar

D. Salt and water

Answer: A



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22. Bowman's capsule is constituent of

A. Renal artery

B. Ureter

C. Uriniferous tubule

D. Renal portal vein

Answer: C



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23. The process used in separating large particles from smaller ones in a solution is called

A. Chromatography

B. Dialysis

C. Osmosis

D. Tyndallisation

Answer: B



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24. Ureotelic animals

A. lack urease

B. do not excrete urea

C. cannot form uric acid

D. live in water

Answer: A



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25. Xenopus excretes

A. Uric acid

B. Urea

C. Ammonia

D. Creatinine

Answer: C



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26. Kidney of frog is

A. Pronephrons

B. Mesonephrons

C. Opisthonephrons

D. Metanephrons

Answer: B



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27. In kidney, nephrostomes are functional in

- A. Tadpole
- B. Adult frog
- C. Cockroach
- D. Rabbit

Answer: A



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28. Ascending Loop of Henle is permeable to

A. Na^+

B. K^+

C. Cl^-

D. all of the above

Answer: C



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29. Number of nephrons in each kidney of man is

A. 1.2 million

B. 0.9 million

C. 1.6 million

D. 0.7 million

Answer: A



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30. Glomerulus and Bowman's capsule constitute

- A. Blood vessels
- B. Malpighian body
- C. Green glands
- D. Malpighian tubules

Answer: B



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31. Function of loop of Henle is

A. Conservation of water

B. Formation of urine

C. Filtration of blood

D. Passage of urine

Answer: A



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32. Renin is released by

A. Cortical nephron

B. Collecting duct

C. Juxtaglomerular apparatus

D. Pelvis

Answer: C



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33. Urinary bladder is absent in

A. Aves

B. Reptiles

C. Amphibians

D. Mammal

Answer: A



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34. Uric acid is formed from

A. Protein

B. Pyrimidine

C. Amines

D. Glucose

Answer: C



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35. Contractile vacuole is analogous to

A. Sweat gland

B. Kidney

C. Semniferous tubule

D. Nerve fibre

Answer: B



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36. Pigeon excretes

A. Urea

B. Ammonia

C. Uric acid

D. None of these

Answer: C



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37. In urinary system, aldosterone takes part in retention and reabsorption of

A. Ca^{2+}

B. K^{+}

C. Na^{+}

D. Water

Answer: C



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38. Voluntary response to distension of urinary bladder is

- A. Polyurea
- B. Micturition
- C. Diabetes
- D. Menstruation

Answer: B



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39. Marine animal first excrete

A. Ammonia

B. Urea

C. Uric acid

D. Amino acid

Answer: B



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40. Green glands present in some arthropods help in

- A. Respiration
- B. Excretion
- C. Digestion
- D. Reproduction

Answer: B



41. Urine is excreted out of the

A. Pelvis

B. Ureter

C. Urinary bladder

D. Urethra

Answer: D



42. The organ which is located at the base of urinary bladder is

- A. Seminal vesicle
- B. Prostate gland
- C. Bulbourethral gland
- D. None of these

Answer: A



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43. Tartaric acid is present in

A. Lemon

B. Tamarind

C. Maize

D. All of the above

Answer: B



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44. Resins are obtained from

A. Pinus

B. Cycas

C. Mango

D. Potato

Answer: A



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Olympiad And Ntse Level Exercises

1. Which of the following would happen to an individual playing a long game of basketball outdoors on a hot afternoon?

A. The production of thyroxine by the thyroid gland would increase.

B. The osmotic pressure of the blood would decrease.

C. The volume of the urine produced would increase.

D. The secretion of ADH from the pituitary gland would increase.

Answer: D



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2. Digestion takes place in a long tube-like canal called the alimentary canal or the digestive tract. Choose the correct order in which food travels through these organs.

A. mouth → gullet → stomach →

small intestine → large intestine

B. mouth → oesophagus → stomach

→ large intestine → small intestine

C. mouth → stomach → oesophagus

→ small intestine → large intestine

D. mouth → stomach → gullet →

small intestine → large intestine

Answer: A



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3. Which one of the following is the correct matching of the site of action on the given substrate, the enzyme acting upon it and the end product?

A. Stomach: fats $\xrightarrow{\text{lipase}}$ micelles

B. Duodenum: triglycerides $\xrightarrow{\text{trypsin}}$
monoglyceride

C. Small intestine: starch $\xrightarrow{\alpha\text{-amylase}}$ a-
disaccharide

D. Small intestine: proteins

pepsin
→

aminoacids

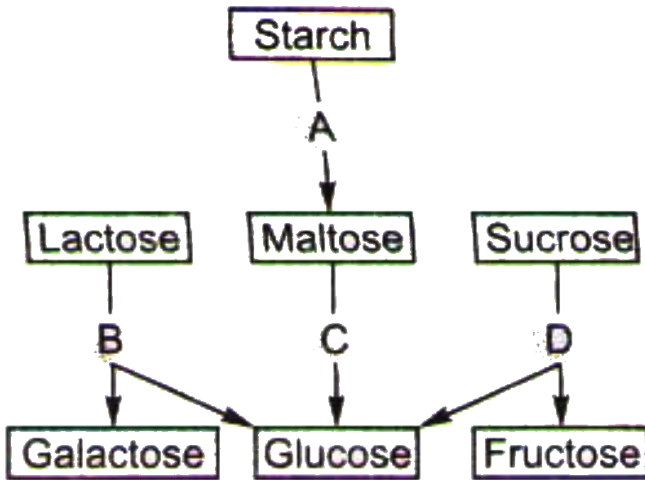
Answer: C



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4. The following is a scheme showing the fate of carbohydrates during digestion in the human alimentary canal. Identify the enzymes acting at stages indicated as A, B, C, and D.

Choose the correct option from those given.



A. a = amylase, b = maltase, c = lactase, d =
invertase

B. a = amylase, b = maltase, c = invertase, d =
lactase

C. a = amylase, b = invertase, c = maltase, d =
lactase

D. a = amylase, b = lactase, c = maltase, d =
invertase

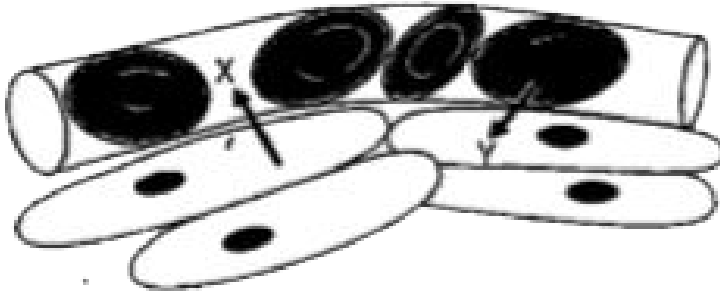
Answer: D



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5. The diagram shows a blood vessel containing red blood cells, next to some muscle cells. Substances are exchanged

between the blood vessel and the muscle cells.



Which row of the table gives the correct names for substances X and Y?

- A. X = carbon dioxide, Y = oxygen
- B. X = glucose, Y = carbon dioxide
- C. X = oxygen, Y = glucose
- D. X = glucose, Y = oxygen

Answer: A



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6. Assertion: Mucus glands occur throughout the alimentary canal.

Reason: Mucus substances facilitate movement of food through the alimentary canal.

A. Both (A) and (R) are true and (R) is the correct explanation of A.

B. Both (A) and (R) are true and (R) is not the correct explanation of A.

C. Both (A) is true statement but (R) is false.

D. Both (A) and (R) are false

Answer: D



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7. Which of the following characterises glomerular filtrate, the fluid that passes from the blood in the glomerulus and into the tubule of the nephron?

A. It is clear in appearance and contains no glucose.

B. It is concentrated solution of waste products.

C. It is identical to blood plasma.

D. It is blood plasma that lacks most proteins.

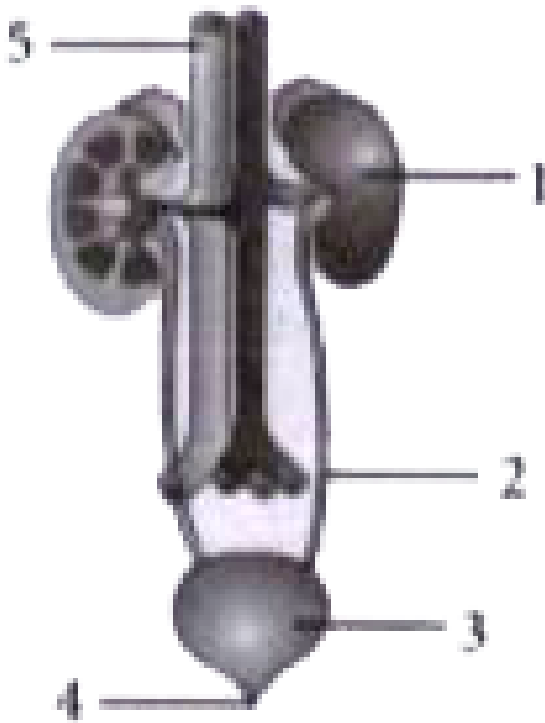
Answer: D



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8. In the diagram of the excretory system of human given below, certain parts have been indicated by numericals. Choose the answer

which shows correct labelling.



A. 1 = urinary bladder, 2 = urethra, 3 =
kidney, 4 = inferior vena cava, 5 = ureter

B. 1 = kidney, 2 = ureter, 3 = urinary bladder,

4 = urethra, 5 = inferior vena cava

C. 1 = kidney, 2 = urethra, 3 = urinary

bladder, 4 = ureter, 5 = inferior vena cava

D. 1 = kidney, 2 = inferior vena cava, 3 =

urinary bladder, 4 = urethra, 5 = ureter

Answer: B



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9. In the human digestive system, digestion occurs in

(a) buccal cavity

(b) stomach

(c) small intestine

(d) large intestine

Chose the correct option from the following

A. (a) only

B. (a) and (b) only

C. (b), (c) and (d) only

D. (a), (b) and (c) only

Answer: D



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10. Match the column I with column II.

Column I

- a. Bilirubin and biliverdin
- b. Hydrolysis of Starch
- c. Digestion of fat
- d. Salivary gland

Column II

- i. Parotid
- ii. Bile
- iii. Lipases
- iv. Amylases

A. a-i, b-ii, c-iii, d-iv

B. a-i, b-iv, c-iii, d-i

C. a-iii, b-iv, c-ii, d-i

D. a-ii, b-iv, c-iii, d-i

Answer: B



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Challenging Exercise

1. List the parts of the blood system through which urea passes from the liver to the kidney?



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2. An aquarium fish and a pigeon were fed on protein diet. In what different forms would they excrete their nitrogenous wastes? How do they excrete so differently?



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3. "Longer the loop of Henle more hypertonic is the urine produced." Is this statement true

of false ? If false, rewrite it correctly.



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