Excretion in humans – 2022 June IGCSE 0610

1. June/2022/Paper_ 11/No.25

A person produced 1.75 dm^3 of urine on a cool day.

How will the volume and concentration of urine change on a hot day, if fluid intake is the same as on the cool day?

	volume	concentration
A	increases	decreases
B	increases	increases
C	decreases	decreases
D	decreases	increases

2. June/2022/Paper_ 12/No.25

Which organ excretes urea?

A kidney

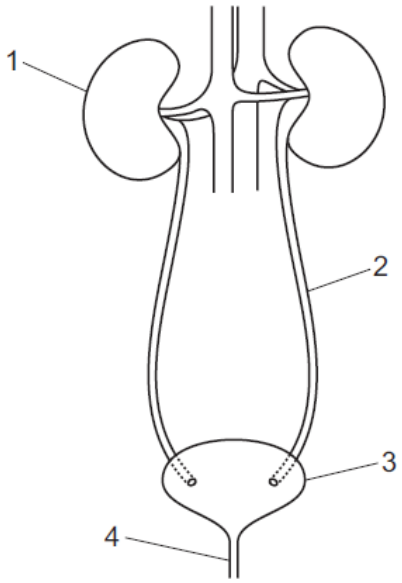
B liver

C lungs

D pancreas

3. June/2022/Paper_ 13/No.25

The diagram shows the excretory system.



Which labels are the ureter and the bladder?

	ureter	bladder
A	2	1
B	2	3
C	4	3
D	4	1

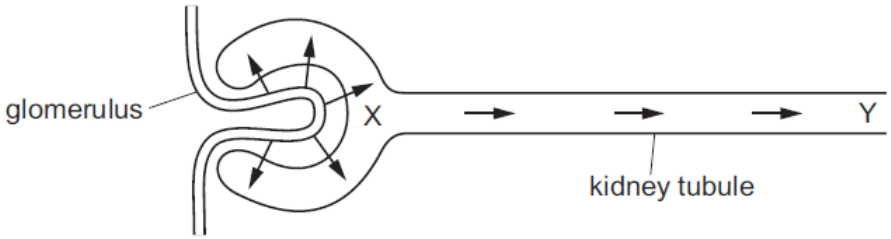
4. June/2022/Paper_ 13/No.26

Which conditions will result in the largest volume of urine being produced by the kidneys?

	water intake / cm^3	environmental temperature / °C	activity
A	1500	15	rest
B	500	15	exercise
C	1500	30	rest
D	500	35	exercise

5. June/2022/Paper_ 21/No.23

Which statement correctly explains the difference in glucose concentration in the kidney tubule between X and Y?



A The glucose concentration is higher at X than at Y because glucose moves out of the kidney tubule by osmosis.

B The glucose concentration is higher at X than at Y because glucose has been actively transported out of the kidney tubule.

C The glucose concentration is higher at Y than at X because glucose diffuses into the kidney tubule.

D The glucose concentration is higher at Y than at X because glucose is actively transported into the kidney tubule.

6. June/2022/Paper_ 23/No.23

Which statement about urea is correct?

A Amino acids are transported to the kidneys where they are converted to urea.

B Urea travels from liver cells to the kidneys where it is filtered out of the blood.

C Liver cells break down proteins to amino acids which are then converted to urea in the kidneys.

D Urea is made in the kidneys and then removed from the body by the liver.

7. June/2022/Paper_ 42/No.2(a_ c)

The kidneys filter blood, separate useful molecules from excretory wastes and control the water content of the blood.

Fig. 2.1 is a diagram of a kidney tubule and associated blood vessels. The arrows show the direction of blood flow.

Fig. 2.2 is a drawing of a vertical section through a cell from the lining of region 2 of the tubule.

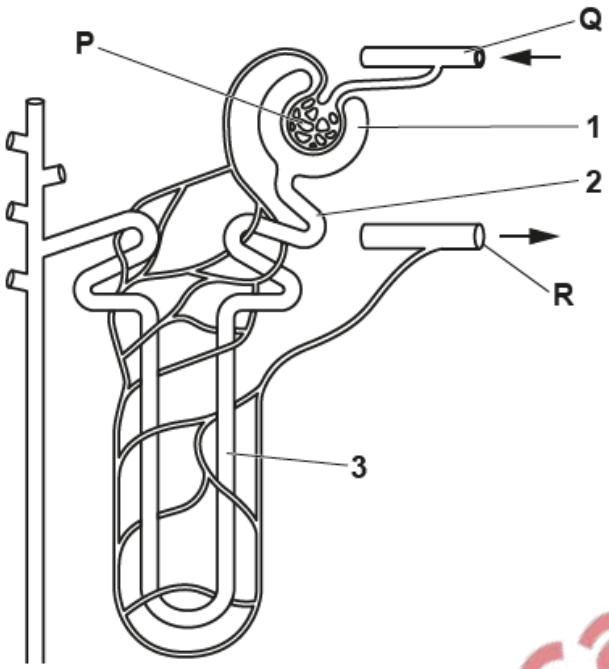


Fig. 2.1

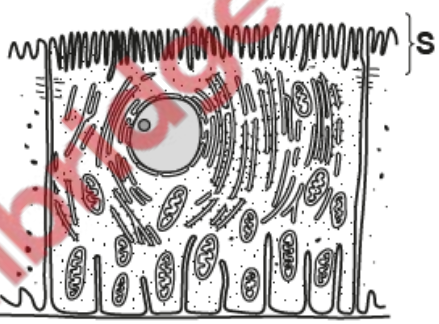


Fig. 2.2

(a) (i) State the name of structure **P**.

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(ii) Blood vessel **Q** has the highest blood pressure.

Suggest why.

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(iii) The structures labelled **S** on Fig. 2.2 are microvilli.

Explain the importance of the microvilli on the surface of these cells.

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(b) Table 2.1 shows the concentrations of some substances in blood plasma and in the regions labelled 1 and 3 on the tubule shown in Fig. 2.1.

Table 2.1

substance	concentration / mg per cm^3		
	blood plasma	region 1	region 3
protein	8000	0	0
glucose	100	100	0
salts	320	320	300
urea	30	30	2000

Outline how the kidney tubules function to produce urine from the substances in blood plasma.

Use the information in Fig. 2.1, Fig. 2.2 and Table 2.1 to support your answer.

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(c) The kidneys are examples of organs that help the body to maintain a constant internal environment.

(i) State the term for maintaining a constant internal environment by negative feedback.

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(ii) Explain how negative feedback controls the blood glucose concentration of a person who has **not** eaten for a day.

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