Excretion in humans – 2020 IGCSE 0610

1. Nov/2020/Paper_12/No.24

The amount of urea in the blood increases as it passes through organ X.

What is organ X?

A heart

B kidney

C liver

D pancreas

2. Nov/2020/Paper_13/No.24

The amount of urea in the blood increases as it passes through organ X.

What is organ X?

A heart

B kidney

C liver

D pancreas

3. Nov/2020/Paper_21/No.22

The table shows the composition of blood entering and leaving the liver and the kidneys.

Which row is correct?

	highest concentration of urea in the blood	lowest concentration of urea in the blood
A	entering kidneys	leaving liver
B	entering kidneys	entering liver
C	leaving kidneys	entering liver
D	leaving kidneys	leaving liver

4. Nov/2020/Paper_22/No.22

How do the concentrations of glucose and urea in urine compare to their concentrations in blood plasma?

	glucose concentration in urine (compared to blood plasma)	urea concentration in urine (compared to blood plasma)
A	higher	lower
B	higher	same
C	same	same
D	lower	higher

5. Nov/2020/Paper_23/No.22

What happens as a result of deamination?

A Amino acids are converted to proteins.

B Glycogen is stored.

C Starch is produced.

D Urea is produced.

6. Nov/2020/Paper_33/No.6

(a) (i) The box on the left shows the beginning of a sentence.

The boxes on the right show some sentence endings.

Draw **two** straight lines from 'Excretion' to the boxes on the right to make **two** correct sentences.

	is the movement of digested food molecules into cells.
	is the passing out of undigested food from an organism.
Excretion	is the removal of excess substances from an organism.
	is the removal of toxic materials from an organism.
	is the taking in of materials for energy and growth.

[2]

(ii) The kidney filters the blood and produces a liquid called urine.

State **three** substances that are found in the urine of a healthy person.

1 .....

2 .....

3 .....

[3]

(b) Fig. 6.1 is a diagram of part of the human excretory system and associated blood vessels.

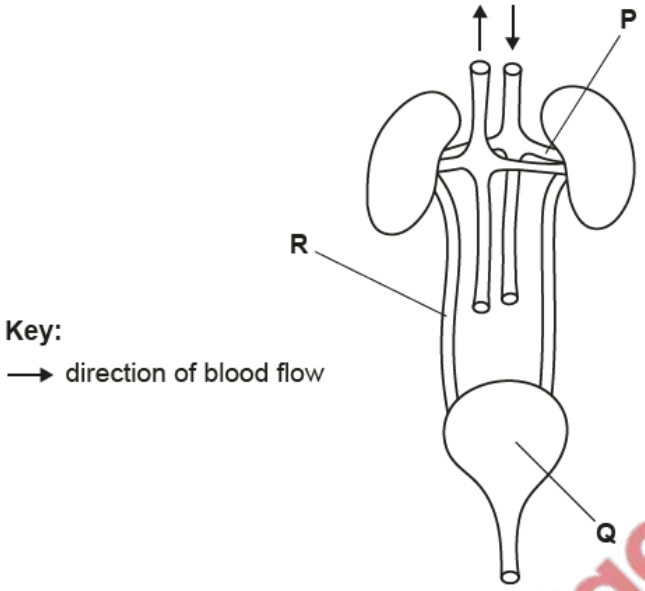


Fig. 6.1

State the names of parts **P**, **Q** and **R** in Fig. 6.1.

P .....

Q .....

R .....

[3]

(c) The volume and concentration of urine produced is affected by changes in water consumption, temperature and exercise levels.

Table 6.1 shows three different conditions.

Complete Table 6.1 by writing **increases** or **decreases** in the boxes to show the effect of each condition on the volume and concentration of urine produced.

Table 6.1

condition	volume of urine	concentration of urine
increase in water consumption		
increase in temperature		
increase in exercise level		

[3]

(d) Protein can be broken down into amino acids.

(i) List **four** chemical elements that are always found in protein.

1 .....

2 .....

3 .....

4 .....

[2]

(ii) State the name of the organ in the human body that breaks down excess amino acids.

..... [1]

(e) Fig. 6.2 shows some chemical reactions that are catalysed by enzymes.

The enzyme catalysing the reaction is shown on the arrow.

Complete Fig. 6.2 by filling in the names of the **four** missing molecules.

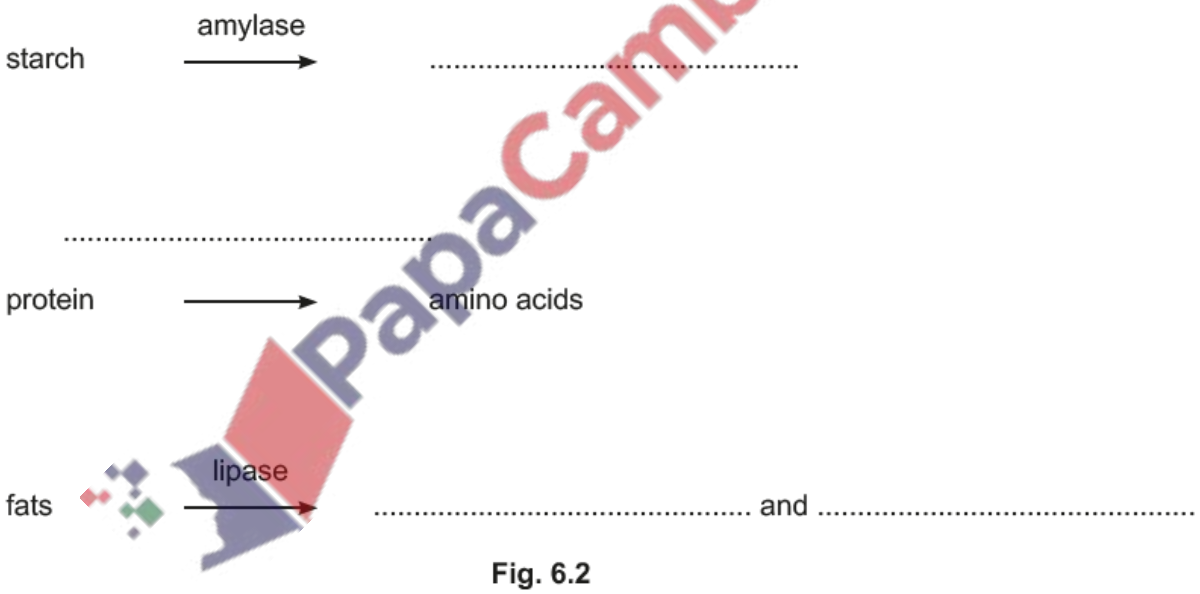


Fig. 6.2

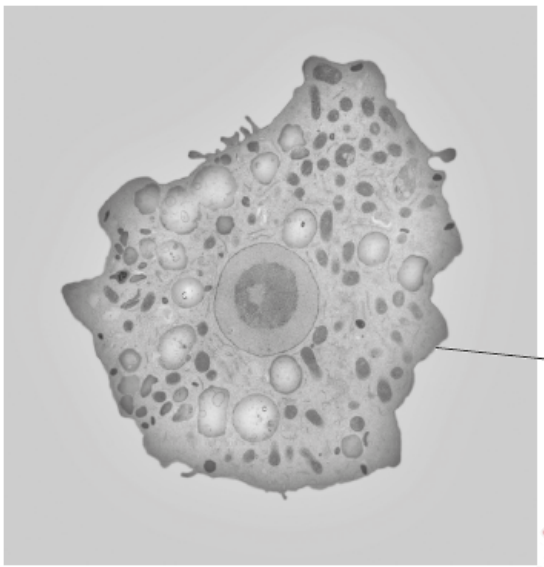
[3]

[Total: 17]

7. Nov/2020/Paper_41/No.3

All living organisms excrete waste products.

(a) Fig. 3.1 is a photomicrograph of *Naegleria fowleri*, a single-celled protoctist that lives in watery environments.



magnification ×4000

Fig. 3.1

(i) State a feature of *N. fowleri*, visible in Fig. 3.1, that distinguishes it from prokaryotes.

..... [1]

(ii) State the name and function of structure **A**.

structure .....

function .....

.....

[2]

(iii) Suggest how *N. fowleri* excretes carbon dioxide.

.....

..... [1]

(b) Urea is a toxin that is excreted by the kidneys in humans.

Describe how **and** where in the body urea is formed.

.....

.....

.....

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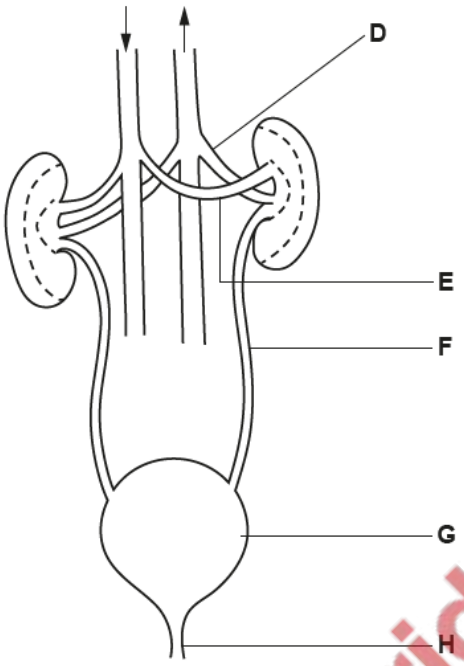
.....

.....

..... [3]

(c) Fig. 3.2 shows part of the human excretory system and associated blood vessels.

The arrows indicate the direction of blood flow.



not to scale

Fig. 3.2

(i) Draw a label line and the letter **X on Fig. 3.2** to show the location of the cortex in **one** of the kidneys. [1]

(ii) Table 3.1 contains statements about the labelled structures in Fig. 3.2.

Complete the table by:

- stating the name of the structure
- identifying the letter that labels that structure.

Table 3.1

description	name of structure	letter from Fig. 3.2
organ that stores urine		
tube that carries urine out of the kidney		
blood vessel with the lowest concentration of urea		
blood vessel with the lowest concentration of carbon dioxide		
tube that carries urine out of the body		

[5]

(d) Doctors wanted to investigate the effect of exercise on the excretion of salts.

They collected urine from people before and after running a long distance on a hot day.

The results of their investigation are shown in Table 3.2.

Table 3.2

	before running	after running
average volume of urine / cm^3	1156.0	569.0
average concentration of sodium in urine / mmol per dm^3	85.6	78.2

(i) Suggest why there is a difference in the volume of urine produced before running compared with after running.

Use the information in Table 3.2 in your answer.

.....

.....

.....

.....

..... [2]

(ii) Calculate the percentage decrease in the average sodium concentration after running compared with before running.

Give your answer to one significant figure.

Space for working.

..... %
[3]

(iii) Describe how the kidney tubules enable the excretion of salts.

.....

.....

.....

.....

.....

.....

..... [3]

(e) Large plasma proteins are usually prevented from entering the urine.

State the name of **one** protein found in blood plasma.

..... [1]

[Total: 22]