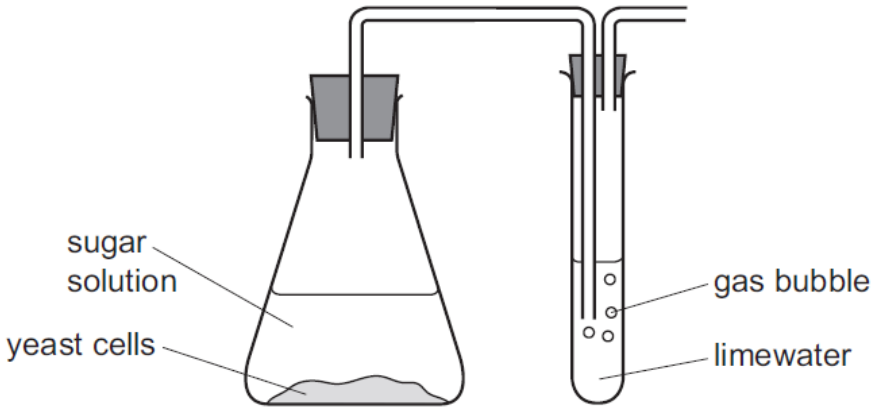
Respiration – 2023 June IGCSE Biology 0610

1. June/2023/Paper_0610/11/No.23

The diagram shows the activity of some yeast cells in a sugar solution.



Which statement explains what happens to the limewater?

A The limewater changes from colourless to cloudy due to the presence of carbon dioxide.

B The limewater changes from colourless to cloudy due to the presence of oxygen.

C The limewater changes from cloudy to colourless due to the presence of carbon dioxide.

D The limewater changes from cloudy to colourless due to the presence of oxygen.

2. June/2023/Paper_0610/11/No.24

What is the word equation for aerobic respiration?

A carbon dioxide + water → glucose + oxygen

B glucose + oxygen → carbon dioxide + water

C glycogen + oxygen → carbon dioxide + water

D water + oxygen → glucose + carbon dioxide

3. June/2023/Paper_0610/12/No.22

Which chemical can be used to show the presence of carbon dioxide gas?

A Benedict's solution

B biuret solution

C ethanol

D limewater

4. June/2023/Paper_0610/12/No.24

Which molecule is produced by anaerobic respiration in yeast?

A carbon dioxide

B lactic acid

C oxygen

D water

5. June/2023/Paper_0610/13/No.23

Which row about aerobic respiration is correct?

	substrates	products
A	glucose + carbon dioxide	oxygen + water
B	glucose + carbon dioxide	oxygen only
C	glucose + oxygen	carbon dioxide + water
D	glucose only	carbon dioxide + water

6. June/2023/Paper_0610/13/No.24

What is a product of anaerobic respiration in yeast?

A alcohol

B glucose

C oxygen

D water

7. June/2023/Paper_0610/21/No.21

In the chemical equation for anaerobic respiration in yeast, the numbers have been replaced by the letters W, X, Y and Z.

$$C_WH_XO_W \rightarrow YC_YH_ZOH + YCO_Y$$

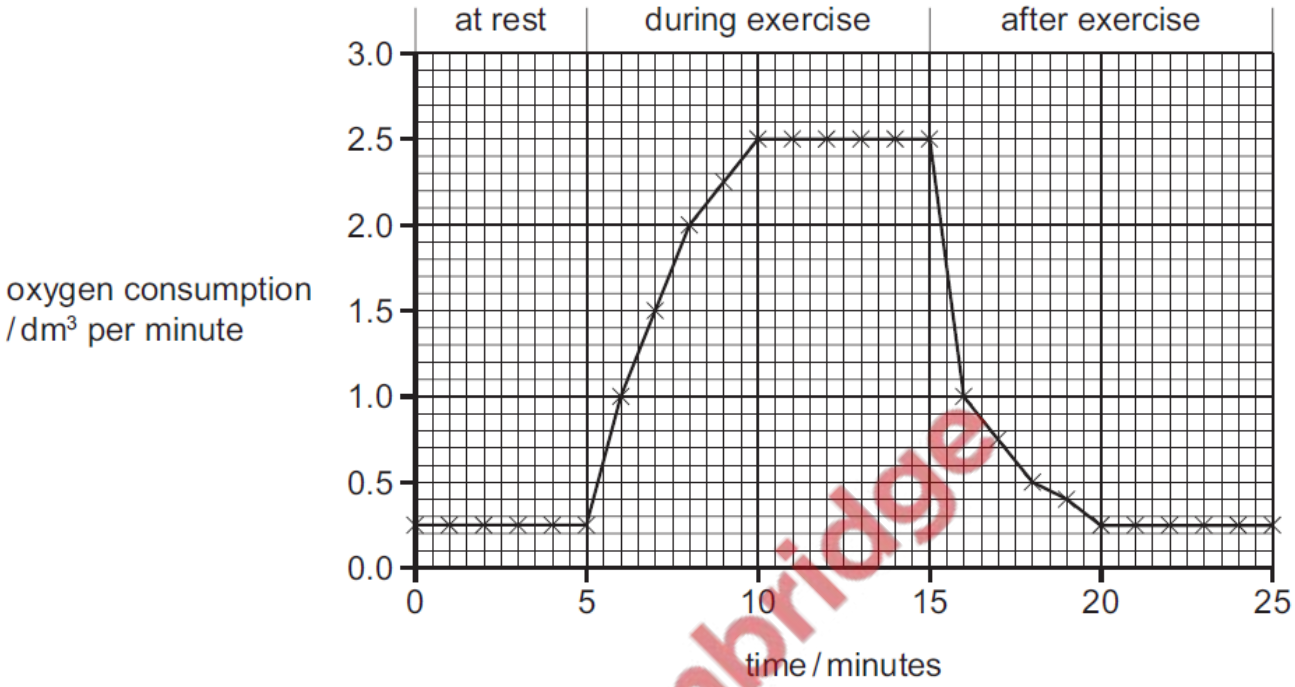
Which number is Z?

A 2 **B** 5 **C** 6 **D** 12

8. June/2023/Paper_0610/21/No.22

A student measured their oxygen consumption before, during and after exercise.

The results are shown in the graph.



At which time is the oxygen debt being removed?

A 5–10 minutes

B 5–15 minutes

C 15–20 minutes

D 20–25 minutes

9. June/2023/Paper_0610/22/No.21

Which row shows aerobic respiration?

	substrates	products
A	$6CO_2 + 6H_2O$	$C_6H_{12}O_6 + 6O_2$
B	$C_6H_{12}O_6 + 6CO_2$	$6H_2O + 6O_2$
C	$6CO_2 + 6O_2$	$C_6H_{12}O_6 + 6H_2O$
D	$C_6H_{12}O_6 + 6O_2$	$6CO_2 + 6H_2O$

10. June/2023/Paper_0610/22/No.22

In which organ is lactic acid respired aerobically to remove an oxygen debt?

A brain

B heart

C liver

D lungs

11. June/2023/Paper_0610/32/No.5

(a) Complete the sentences about anaerobic respiration in **humans**, using words or phrases from the list.

You may use the words or phrases once, more than once or not at all.

alcohol **breaks down** **builds up** **carbon dioxide**

element **lactic acid** **less** **molecule** **more**

muscles **particle** **oxygen** **releases**

Anaerobic respiration is the chemical reaction in cells that ..... nutrient molecules to release energy without using ..... .

Anaerobic respiration releases much ..... energy per glucose ..... than aerobic respiration.

..... is produced by anaerobic respiration during vigorous exercise.

[5]

(b) Complete the word equation for anaerobic respiration in **yeast**.

glucose ⟶ ..... + ...

[2]

[Total: 7]

12. June/2023/Paper_0610/41/No.6

(a) A scientist monitored the changes in the pH in muscles before, during and after two minutes of vigorous exercise.

The changes in pH are caused by the production of lactic acid.

13. June/2023/Paper_0610/42/No.5

Fig. 5.1 is a photomicrograph of a structure found in animal and plant cells.

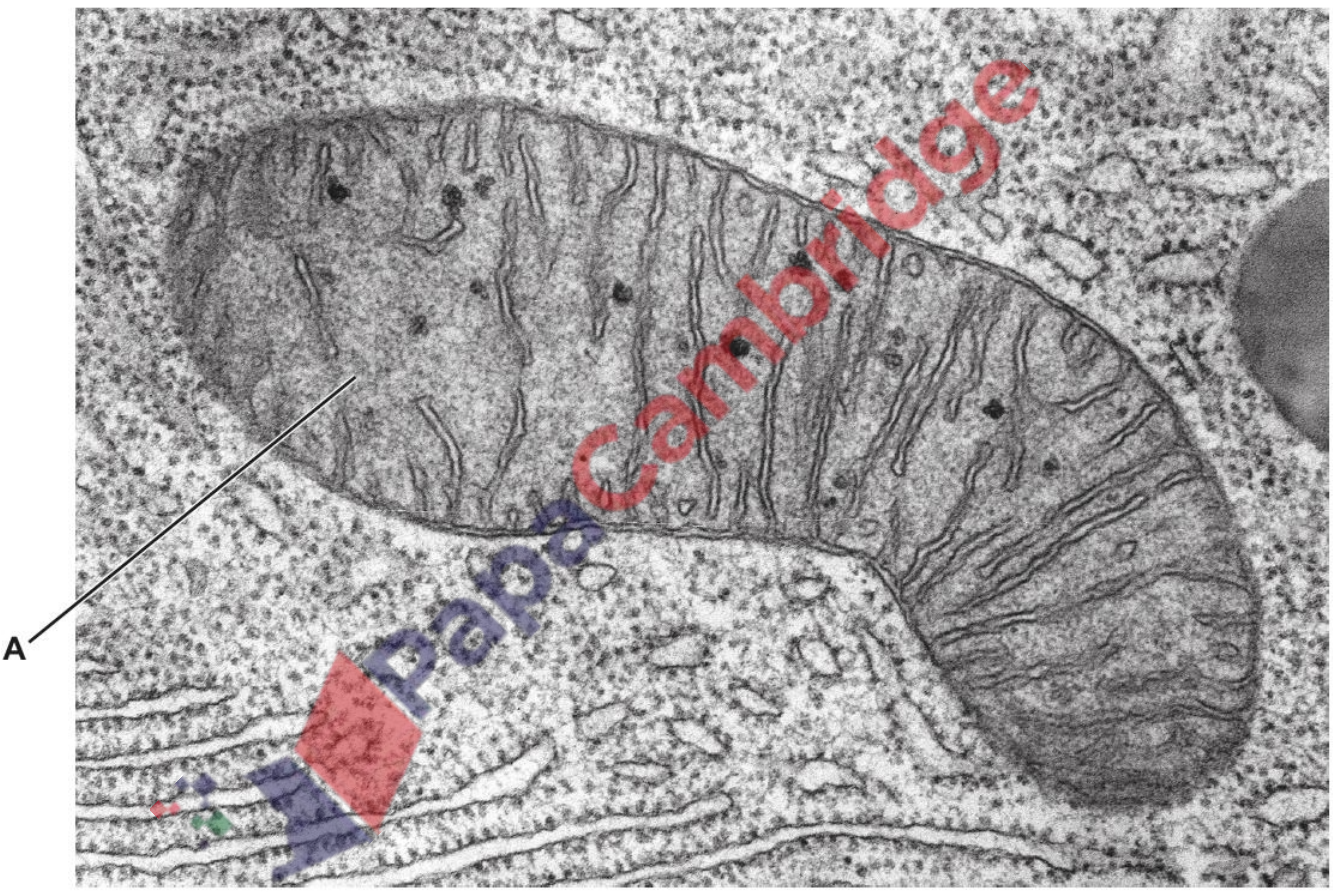


Fig. 5.1

(a) State the name and function of the cell structure labelled **A** in Fig. 5.1.

name .....

function .....

.....

[2]

(b) State the **two** pieces of information needed to calculate the actual length of cell structure **A** in Fig. 5.1.

1 .....

2 .....

[1]

(c) The actual length of cell structure **A** is 0.000 75 mm.

Convert this value to micrometres (μm).

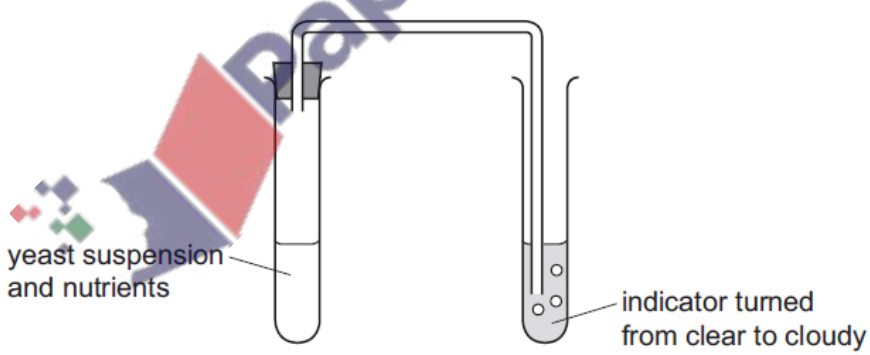
.....μm [1]

[Total: 4]

14. March/2023/Paper_ 0610/12/No.22

A student investigated the effect of temperature on respiration in yeast.

The diagram shows the apparatus they used.



Which substance turned the indicator from clear to cloudy?

A carbon dioxide

B glucose

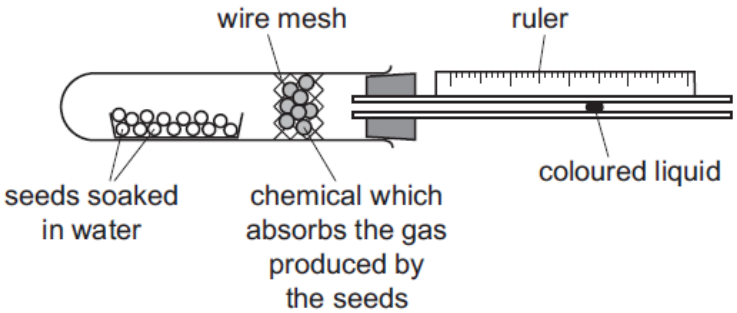
C oxygen

D water

15. March/2023/Paper_ 0610/12,22/No.23,21

The apparatus shown was used to investigate aerobic respiration in seeds.

The apparatus was placed in a dark room.



All environmental conditions were kept constant.

What will happen in the apparatus?

	gas taken in by the seeds	gas absorbed by the chemical in the wire mesh	direction of movement of the coloured liquid
A	carbon dioxide	oxygen	towards the seeds
B	carbon dioxide	oxygen	away from the seeds
C	oxygen	carbon dioxide	towards the seeds
D	oxygen	carbon dioxide	away from the seeds