

Revision Sheet

IGCSE Biology · Unit 12 Respiration

6 vocabulary items · 32 marks of exam questions (6 questions)

Part 1 · Vocabulary review (6 items). The terms this unit is examined on most. Mark it yourself from the answer key.

Section A · Chinese to English

Write the English word.

1.

[1]
2.

[1]
3.

[1]
4.

[1]
5.

[1]
6.

[1]

Part 2 · Exam questions (32 marks, 6 questions) begins on the next page. They are ordered easy to difficult and none of them has been set before.

7 Vigorous exercise can cause an oxygen debt.

☐ Which process removes the oxygen debt?

- A** aerobic respiration of lactic acid in the liver
- B** a decrease in breathing rate
- C** a decrease in heart rate
- D** an increase in blood supply to the skin

8 These are processes that occur in plants.

- ☐
- 1 active transport
 - 2 cell division
 - 3 osmosis
 - 4 transpiration

Which processes use energy from respiration?

- A** 1 and 2 **B** 1 and 4 **C** 2 and 3 **D** 3 and 4

9 What is the correct balanced equation for one type of respiration?

- ☐
- A** $\text{C}_2\text{H}_5\text{OH} \rightarrow 2\text{C}_6\text{H}_{12}\text{O}_6 + 2\text{CO}_2$
 - B** $2\text{C}_2\text{H}_5\text{OH} \rightarrow \text{C}_6\text{H}_{12}\text{O}_6 + 2\text{H}_2\text{O}$
 - C** $\text{C}_6\text{H}_{12}\text{O}_6 \rightarrow 2\text{C}_2\text{H}_5\text{OH} + 2\text{CO}_2$
 - D** $\text{C}_6\text{H}_{12}\text{O}_6 \rightarrow 2\text{C}_2\text{H}_5\text{OH} + 2\text{H}_2\text{O}$

10 (a) Fig. 5.1 is a diagram of a cell carrying out one type of respiration.

The arrows show the direction of movement of the substances involved in respiration in this type of cell.

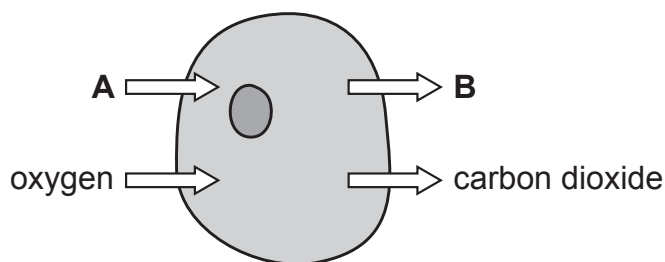


Fig. 5.1

(i) State the type of respiration shown by Fig. 5.1.

..... [1]

(ii) Identify the substances involved in respiration that are represented by the letters **A** and **B** in Fig. 5.1.

A

B [2]

(iii) State the process by which oxygen moves into the cell.

..... [1]

(b) State **three** processes that require energy from respiration.

1

2

3

[3]

(c) Some students investigated the effect of temperature on respiration in yeast.

- The students put a beaker containing 20 cm³ of a yeast suspension into a water-bath at different temperatures.
- They collected the gas released by the yeast cells in a gas syringe.
- They recorded the volume of gas released after 15 minutes.

Table 5.1 shows the results.

Table 5.1

temperature / °C	volume of gas collected in 15 minutes / cm ³
0	0.5
10	2.8
20	5.6
30	9.2
40	18.2
50	16.3
60	10.4
70	0.3
80	0.1
90	0.1

Using the data in Table 5.1, describe the effect of temperature on the rate of respiration in yeast.

.....

.....

.....

.....

.....

.....

.....

..... [3]

[Total: 10]

- 11 (a)** A scientist measured the mass of carbon dioxide produced by anaerobic respiration in yeast cells for 1200 minutes.

Fig. 7.1 shows the results.

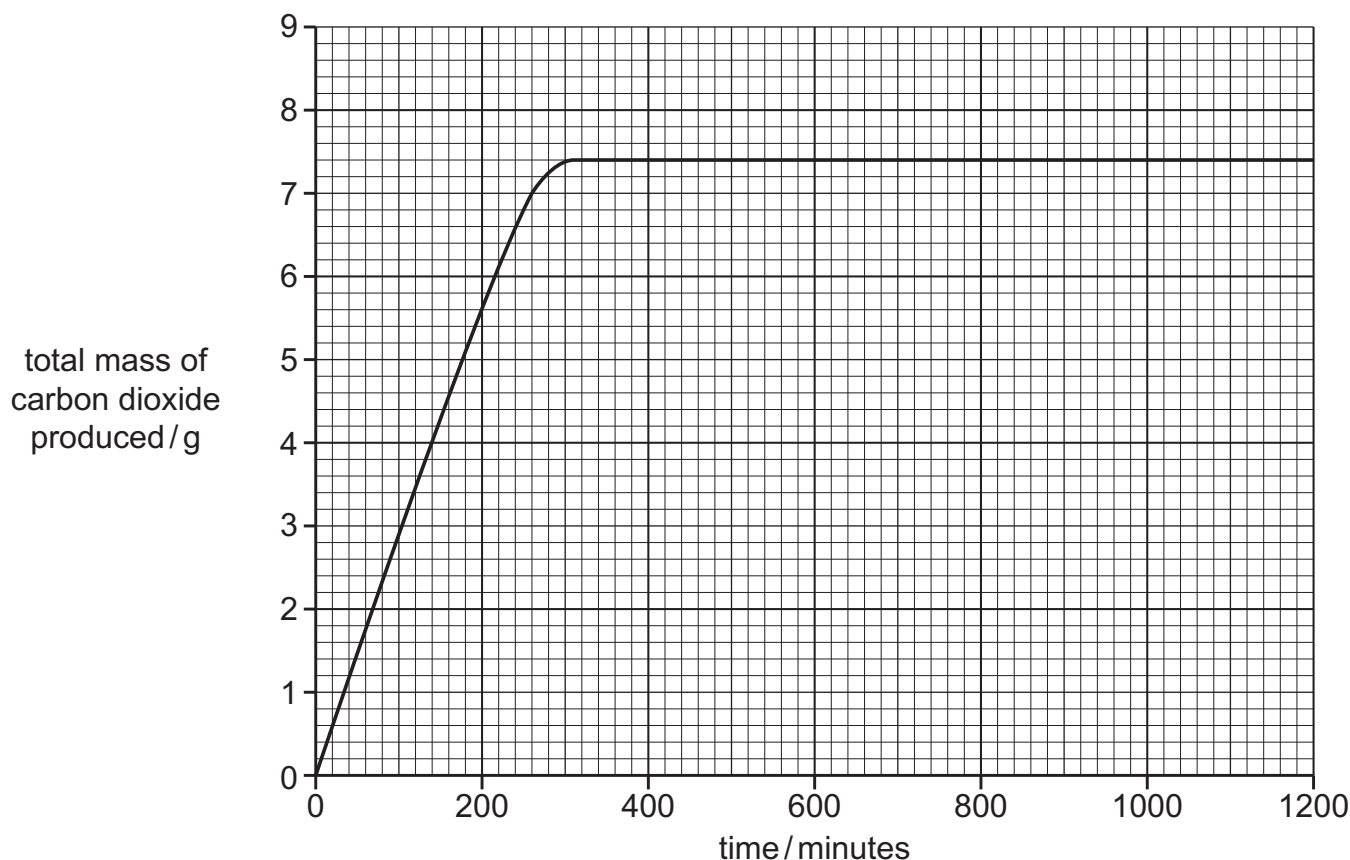


Fig. 7.1

- (i)** Complete the sentences to describe the results shown in Fig. 7.1.

The yeast cells produced a total of g of carbon dioxide during 1200 minutes.

The yeast cells stopped producing carbon dioxide at minutes.

[2]

- (ii)** The investigation was repeated with boiled yeast cells.

Predict the effect on the mass of carbon dioxide produced **and** explain your prediction.

.....

.....

.....

.....

..... [2]

(iii) State the name of **one other** product of anaerobic respiration in yeast cells.

..... [1]

(b) The box on the left contains the term 'Respiration'.

The boxes on the right contain sentence endings.

Draw **two** lines to join the term 'Respiration' to two boxes on the right to make **two** correct sentences.

Respiration

always produces carbon dioxide.

is necessary for diffusion.

occurs only in animals.

releases energy.

uses glucose.

[2]

(c) State **one** substance required for aerobic respiration that is **not** required for anaerobic respiration.

..... [1]

(d) Respiration is one of the characteristics of living things.

Tick (✓) **two** boxes to show two other characteristics of **all** living things.

breathing	
excretion	
growth	
photosynthesis	
sexual reproduction	

[2]

[Total: 10]

- 12 (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.

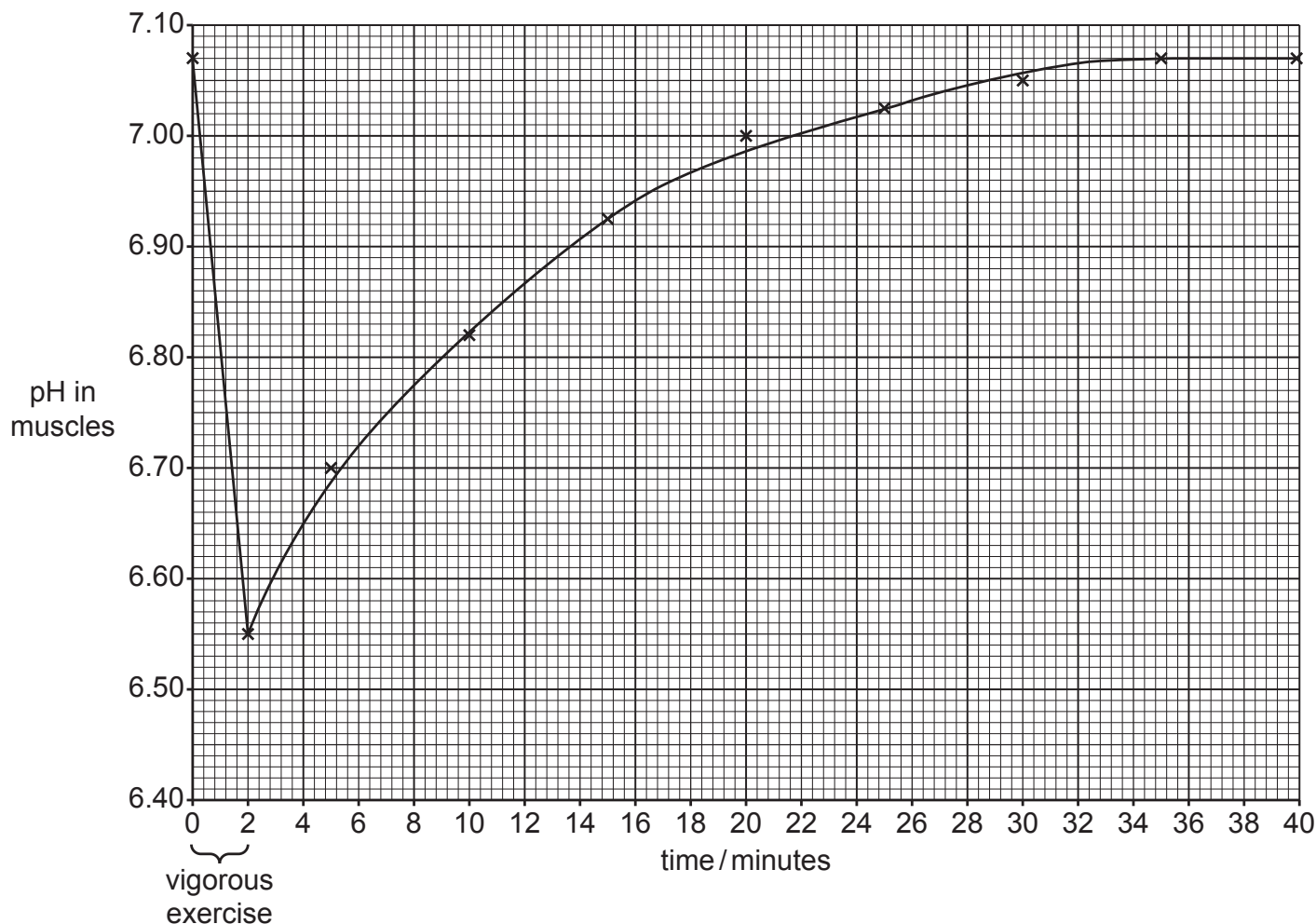


Fig. 6.1

Complete the sentences to describe **and** explain the results in Fig. 6.1.

The pH decreases from to during vigorous exercise.

There is not enough supplied to the muscles.

The body respire anaerobically. The lactic acid produced builds up in the muscles causing an debt.

It takes minutes for the muscle pH to return to its initial level after exercise.

The pH value increases after vigorous exercise has ended, as lactic acid is transported in the to the

During this time the breathing rate and rate remain high.

[6]

(b) Yeast can respire anaerobically.

(i) Complete the balanced chemical equation for anaerobic respiration in yeast.

$C_6H_{12}O_6$ [2]

(ii) Yeast belongs to the kingdom fungus.

State **one** cell component that is present in yeast cells but is absent in animal cells.

..... [1]

[Total: 9]