12. Respiration

12.2 Aerobic respiration

Paper 3 and 4

Question Paper

Paper 3

Questions are applicable for both core and extended candidates

1 **(c)** Substances needed for respiration diffuse into cells.

(i) Circle the **two** substances needed for aerobic respiration in humans.

carbon dioxide **glucose** **glycogen**

oxygen **protein** **urea** **water**

[2]

(ii) State where aerobic respiration occurs in cells.

..... [1]

(iii) State the name of the part of **all** cells that substances pass through to enter the cell.

..... [1]

2 **(b)** State the word equation for aerobic respiration.

..... [2]

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

The boxes on the right show some sentence endings.

Draw **three** straight lines to make three correct sentences about aerobic respiration.

Aerobic respiration	involves enzymes.
	only occurs in animals.
	produces carbon dioxide and water.
	produces lactic acid.
	requires chlorophyll.
	uses glucose and oxygen.

[3]

(ii) Complete the sentence by circling the correct word or phrase shown **in bold**.

Aerobic respiration releases **less / more / the same amount of** energy compared with anaerobic respiration.

[1]

(iii) Describe how respiration in yeast is used in industry to produce useful products for humans.

.....

.....

.....

.....

.....

.....

..... [3]

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

..... [1]

5 **(a)** The box on the left contains the words 'Aerobic respiration'.

The boxes on the right show some sentence endings.

Draw lines to make **three** correct sentences about aerobic respiration.

Aerobic respiration	involves the action of enzymes.
	occurs in animals only.
	produces water.
	requires carbon dioxide.
	releases less energy than anaerobic respiration.
	requires oxygen.

[3]

6 **(d)** Aerobic respiration increases during exercise.

Use the words from the list to complete the definition of *aerobic respiration*.

Each word or phrase may be used once, more than once or not at all.

cells **carbon dioxide** **DNA** **oxygen**

the heart **the brain** **nutrient**

Aerobic respiration is the chemical reactions in ..... that use

..... to break down ..... molecules to release

energy. [3]

7 **(a)** Respiration releases energy.

Write the word equation for aerobic respiration.

..... [2]

Paper 4

Questions are applicable for both core and extended candidates unless indicated in the question

8 **(a)** Some students were studying the activity of yeast. They made a fact file, as shown in Fig. 1.1.

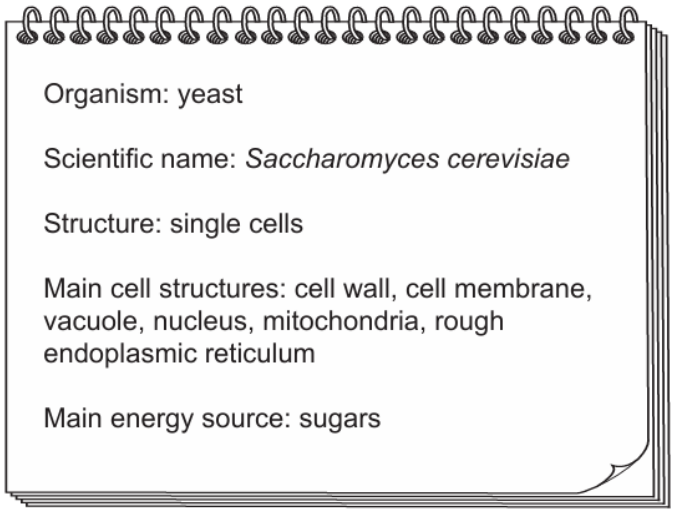

Fig. 1.1

(i) State the kingdom in which yeast is classified. **(extended only)**

..... [1]

(ii) State the process that occurs in mitochondria to provide energy for yeast cells.

..... [1]

9 **(a)** State the balanced chemical equation for aerobic respiration. **(extended only)**

.....[2]

10 **(b)** Fly larvae are immature insects that are often used in experiments on respiration.

Give the balanced chemical equation for aerobic respiration. **(extended only)**

..... [2]

(c) A respirometer is shown in Fig. 5.2. It can be used to estimate an organism's rate of respiration.

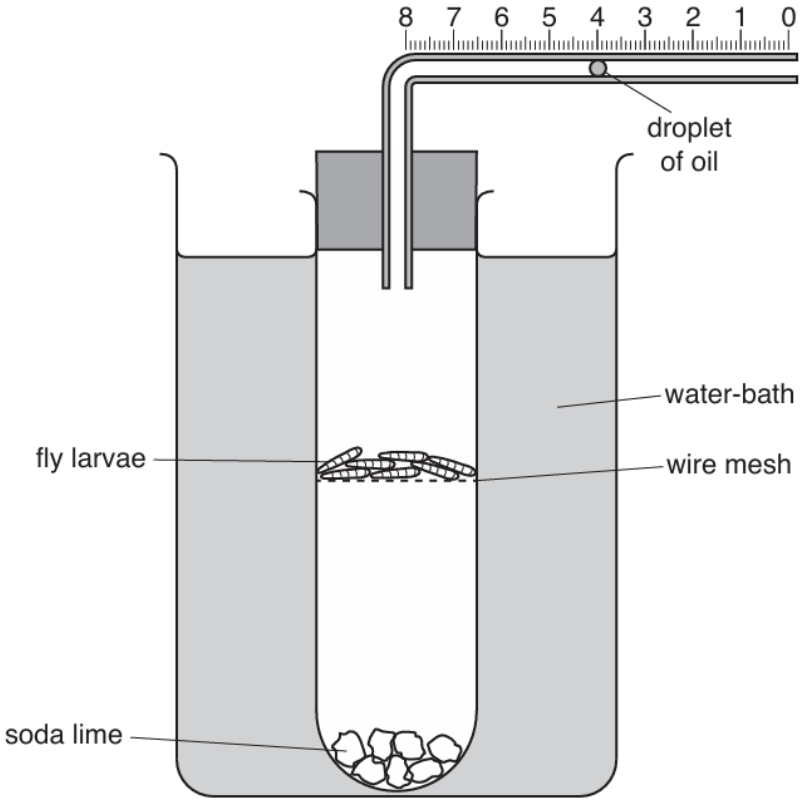

Fig. 5.2

(i) Complete the sentences:

A respirometer can be used to calculate the ..... of oxygen used by the fly larvae by measuring the ..... the droplet of oil moves in one minute. A water-bath is used to ..... the temperature of the apparatus.

[3]

(ii) The soda lime in the respirometer absorbs carbon dioxide.

Explain why this is important in this investigation.

.....

.....

..... [1]