

Respiration

Question Paper 3

Level	IGCSE
Subject	Biology
Exam Board	CIE
Topic	Respiration
Paper Type	(Extended) Theory Paper
Booklet	Question Paper 3

Time Allowed: 65 minutes

Score: /54

Percentage: /100

- 1 Fig. 2.1 shows a person sitting in a room. A thermometer shows the temperature of the room.

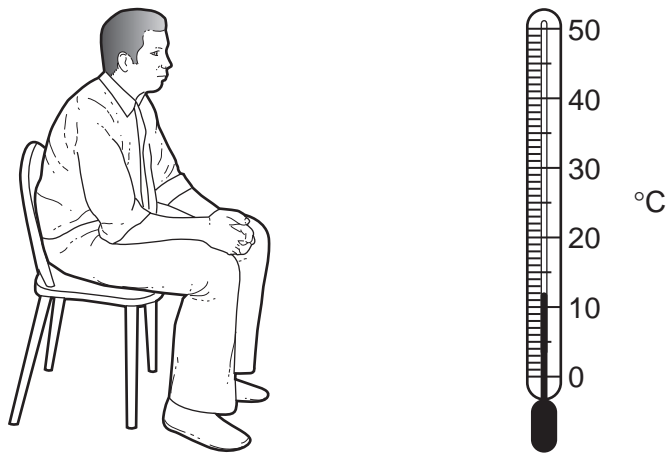


Fig. 2.1

- (a) Give three uses of energy in the body of the person in Fig. 2.1.

1.
2.
3. [3]

- (b) Name the process carried out by the person in Fig. 2.1 that releases energy.

..... [2]

- (c) The person leaves the room and runs very fast for 200 m. When the person stops running, his breathing rate and his heart rate remain high.

Explain why the person's breathing rate and heart rate remain high after the run.

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..... [4]

- (d) There are changes in the skin at the beginning of the run and during the run. These changes involve the blood vessels and the sweat glands.

Describe what happens to the blood vessels and sweat glands at the beginning of the run and during the run.

Explain why these changes happen.

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[Total: 14]

2 (a) State, using chemical symbols, the equation for aerobic respiration.

..... [3]

A student compared the respiration of germinating mung bean seeds with pea seeds using the apparatus shown in Fig. 3.1.

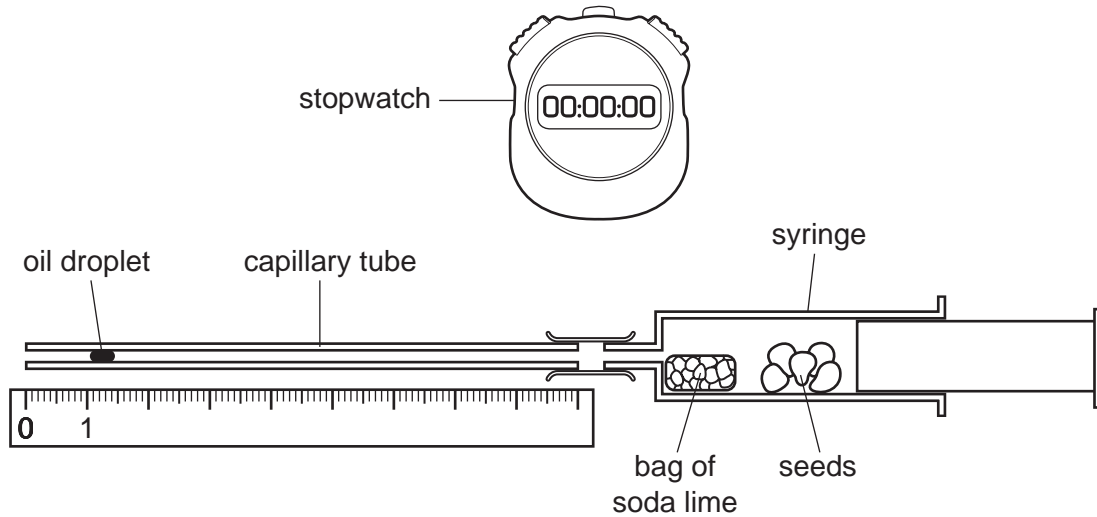


Fig. 3.1

The soda lime absorbs any carbon dioxide released by the germinating seeds. The student recorded the position of the oil droplet every minute over a period of six minutes.

(b) State three variables that should be kept constant in this investigation.

- 1
- 2
- 3 [3]

(c) Table 3.1 shows the student’s results.

Table 3.1

time / minute	germinating mung bean seeds		germinating pea seeds	
	position of droplet / mm	distance moved / mm per minute	position of droplet / mm	distance moved / mm per minute
0	0	0	0	0
1	12	12	10	10
2	23	11	19	9
3	36	13	28	9
4	45	9	33	5
5	48	3	36	3
6	48	0	36	0

(i) State which way the droplet moves **and** explain your answer.

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..... [3]

(ii) State what happens to the movement of the droplet after three minutes **and** suggest an explanation.

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[Total: 11]

3 (a) Define the term *aerobic respiration*.

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During exercise the movement of the ribcage enables air to enter the lungs.

(b) Describe how the ribcage is moved during inspiration (breathing in) and explain how this causes air to enter the lungs.

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(c) Explain how the ribcage returns to its resting position during expiration (breathing out).

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- 4 (a) In the space below write a balanced chemical equation for anaerobic respiration in muscles.

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[2]

Some students investigated the breathing of a 16-year old male athlete. Fig. 3.1 shows the pattern of his breathing for 60 seconds when resting. Fig. 3.2 shows the pattern of his breathing while he took some exercise for 60 seconds.

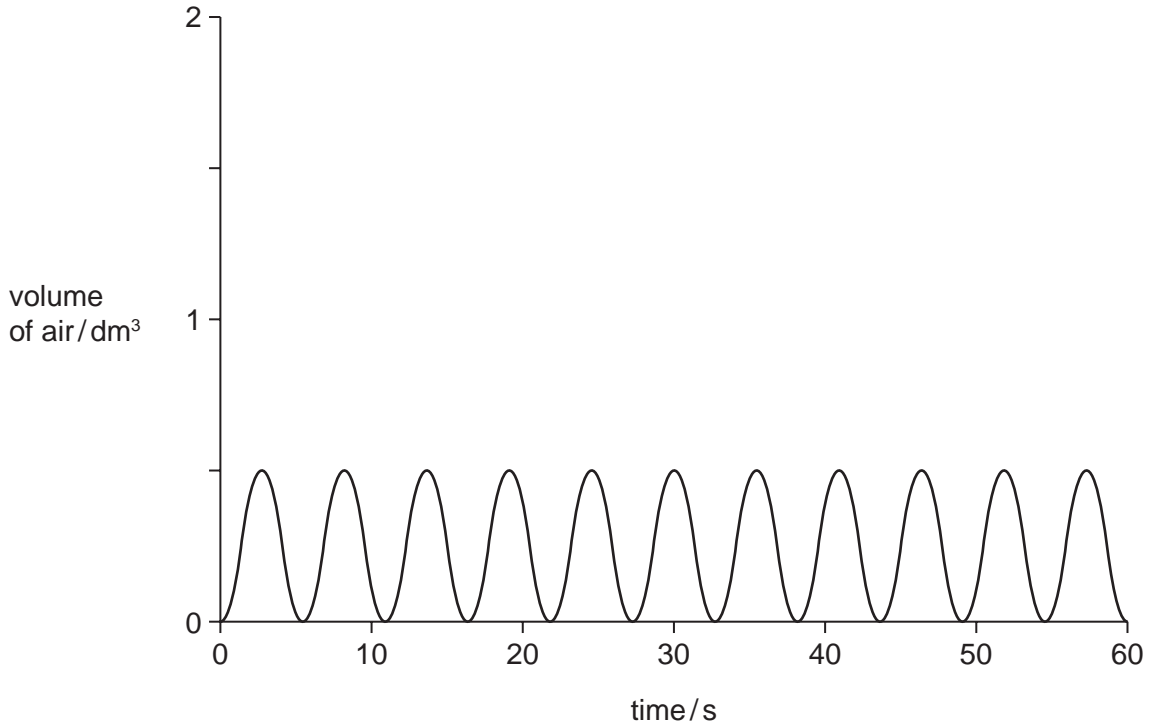


Fig. 3.1

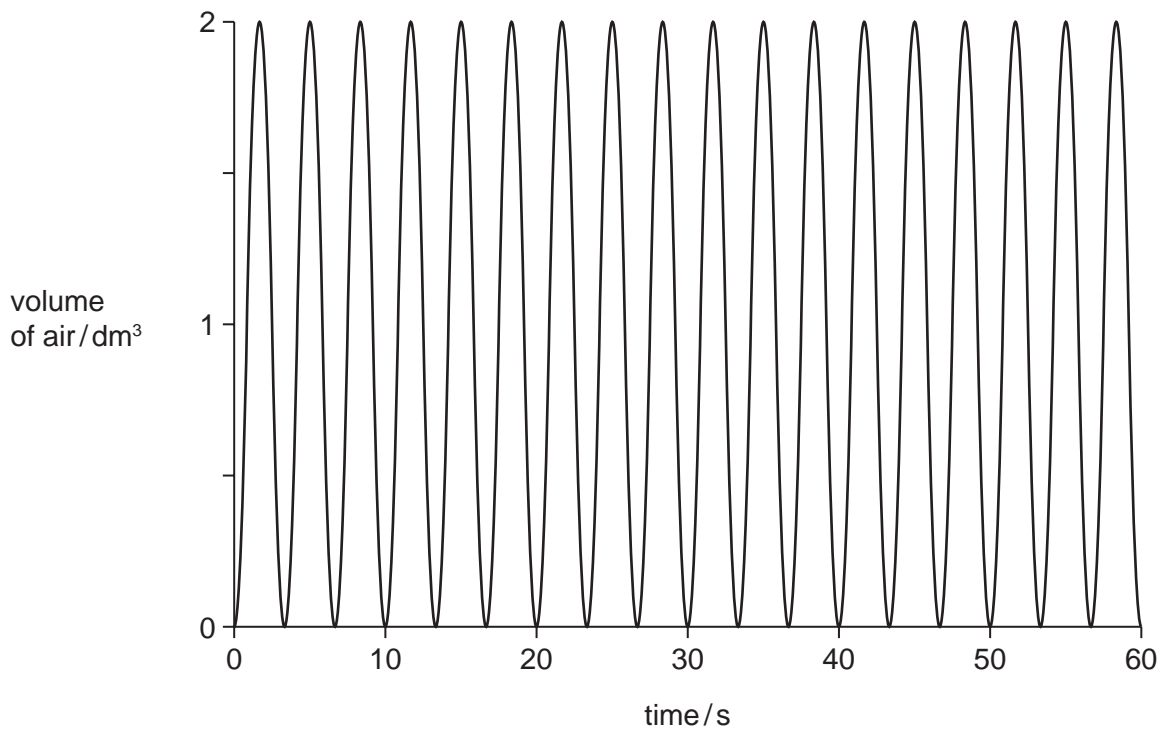


Fig. 3.2

- (d) During strenuous exercise, the hormone adrenaline causes changes in the pulse rate and in the concentration of glucose in the blood.

Explain the importance of these changes during strenuous exercise.

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concentration of glucose in the blood

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..... [5]

[Total: 15]