Gas exchange in humans – 2022 November IGCSE 0610 Biology

1. Nov/2022/Paper_11/No.22

What is the approximate percentage of oxygen in expired air?

A 0.04% **B** 4% **C** 16% **D** 21%

2. Nov/2022/Paper_12/No.22

What is the approximate percentage of oxygen in expired air?

A 0.04% **B** 4% **C** 16% **D** 21%

3. Nov/2022/Paper_12/No.27

Which hormone causes an increase in breathing rate, an increase in heart rate and the widening of pupils?

A insulin

B adrenaline

C oestrogen

D testosterone

4. Nov/2022/Paper_13/No.22

What is the approximate percentage of oxygen in expired air?

A 0.04% **B** 4% **C** 16% **D** 21%

5. Nov/2022/Paper_21/No.20

What is the approximate percentage of oxygen in expired air?

A 0.04% **B** 4% **C** 16% **D** 21%

6. Nov/2022/Paper_22/No.20

What is the approximate percentage of oxygen in expired air?

A 0.04% **B** 4% **C** 16% **D** 21%

7. Nov/2022/Paper_23/No.20

What is the approximate percentage of oxygen in expired air?

A 0.04% **B** 4% **C** 16% **D** 21%

8. Nov/2022/Paper_31/No.5(b_ c)

(b) A student breathed into a machine while they were at rest.

The machine recorded the volume of air as they breathed in and out.

The results are shown in Fig. 5.1.

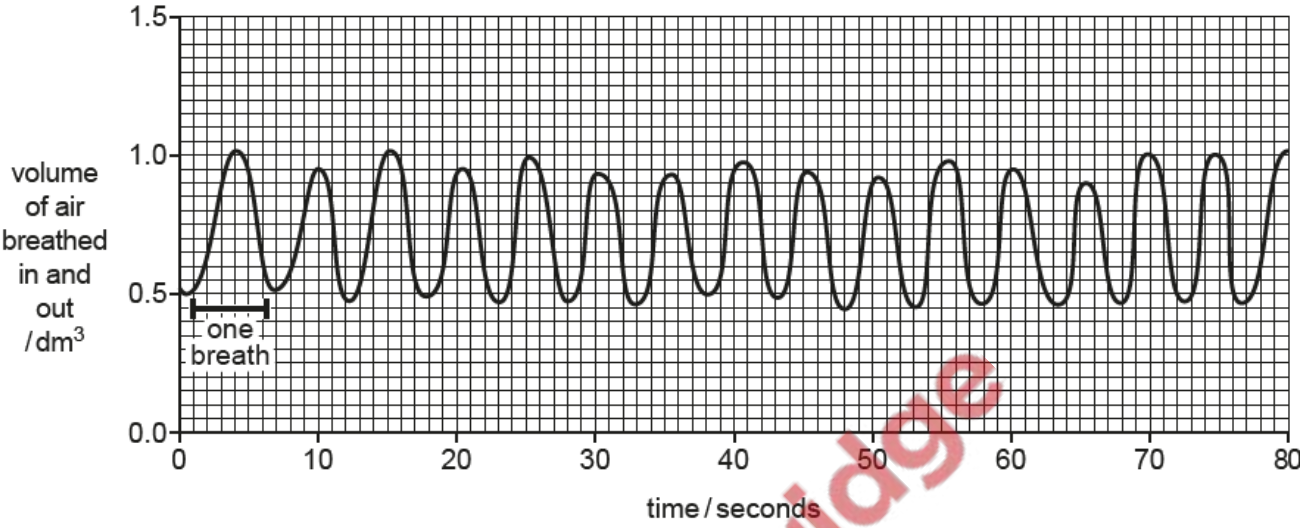

Fig. 5.1

(i) Estimate the number of breaths per minute the student took at rest.

..... breaths per minute [1]

(ii) State the volume of air breathed in during the first breath shown in Fig. 5.1.

..... dm^3 [1]

(iii) The rate and depth of breathing increases during physical activity.

Sketch another line **on Fig. 5.1** between 60 and 80 seconds to show this. [2]

(c) Some drugs can decrease the breathing rate.

Define what is meant by the term drug.

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..... [2]

9. Nov/2022/Paper_41/No.6

(a) Fig. 6.1 shows part of the human gas exchange system.

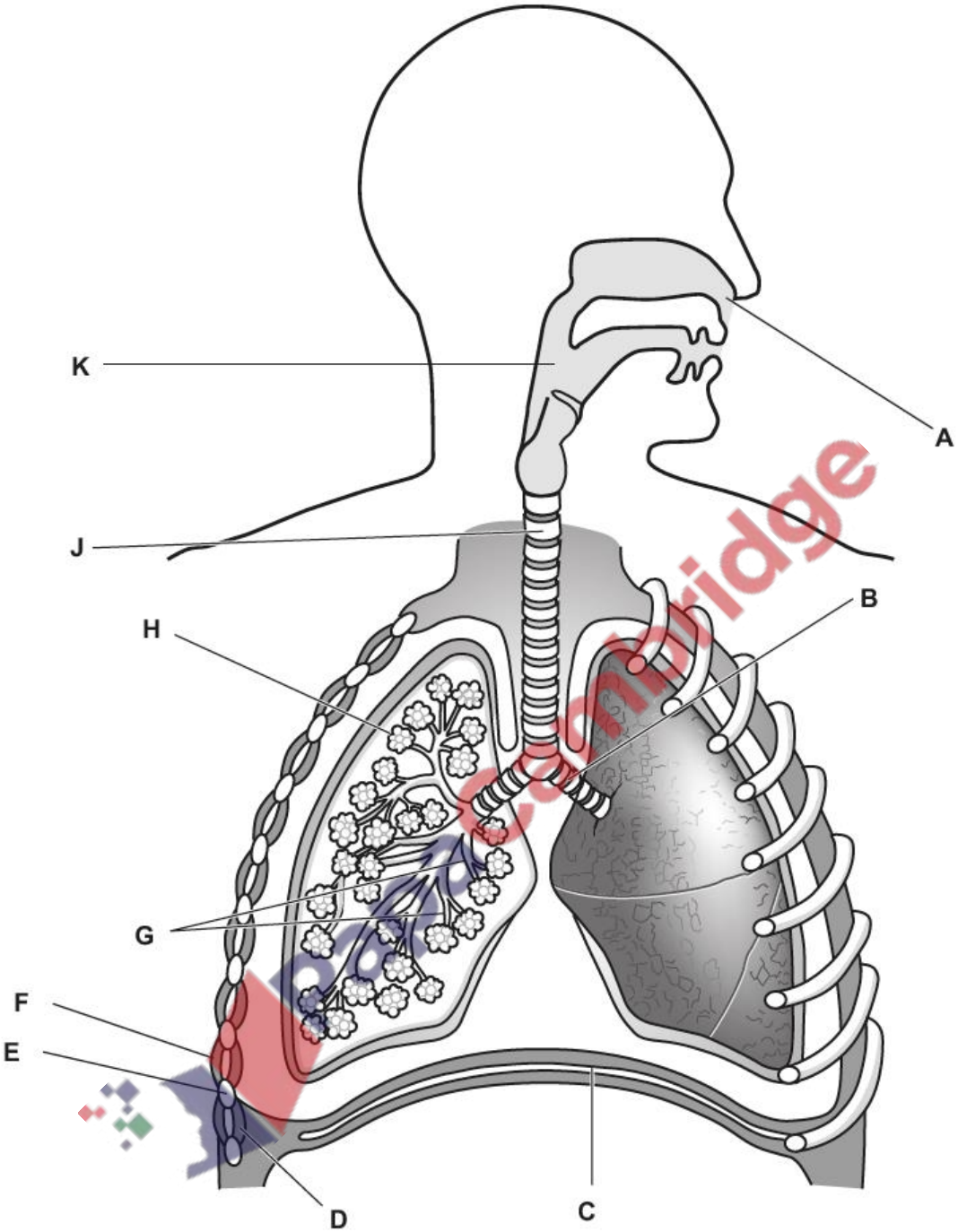

Fig. 6.1

(i) Table 6.1 shows the names of some parts of the human gas exchange system, their functions and the letters in Fig. 6.1 that identify the parts.

Complete Table 6.1.

Table 6.1

function	name of the structure	letter in Fig. 6.1
	hairs in the nose	**A**
prevents collapse of the airway		
contracts to decrease the pressure in the thorax		**F**
	diaphragm	
protects the lungs from mechanical damage		
contains cilia to move mucus out of the airway		
site of gas exchange	alveoli	

[7]

(ii) Describe and explain how the alveoli are adapted for gas exchange.

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..... [3]

(b) **(i)** Explain the differences in composition between inspired and expired air.

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..... [3]

(ii) Physical activity changes the concentration of carbon dioxide in the body.

State where this change is detected **and** how the body responds to the change.

.....

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.....

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..... [2]

(iii) State the name of a solution that can be used to test for the presence of carbon dioxide gas.

..... [1]

[Total: 16]