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Level: HL IB in Biology
Subject: Biology
Topic: IB HL Biology
Type: Topic Question

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All International Baccalaureate IB Topic Questions HL Biology

BIOLOGY

HL - IB

Key skills

****Question 1****

During a gas exchange investigation, measurements were recorded from four animals as they breathed normally over 5 minutes. The efficiency of gas exchange was the same in all four animals, and tidal volume refers to the volume of air that moves into the lungs with each normal breath.

Which animal had the highest oxygen intake during five minutes of normal breathing?

Animal	Tidal volume / dm ³	Breathing rate / breaths per minute
A	0.2	10
B	0.6	20
C	0.5	18
D	0.33	24

- A. A
- B. B
- C. C
- D. D

[1 mark]

****Question 2****

Which row of the table contains five correct statements about forced expiration?



Ribs	Diaphragm	Pressure in thorax	External intercostal muscles	Internal intercostal muscles
A. Move down and inwards	Contracts	Increases	Relax	Relax
B. Move down and inwards	Relaxes	Increases	Relax	Contract
C. Move down and inwards	Relaxes	Decreases	Recoil	Contract
D. Move up and outwards	Contracts	Decreases	Contract	Contract

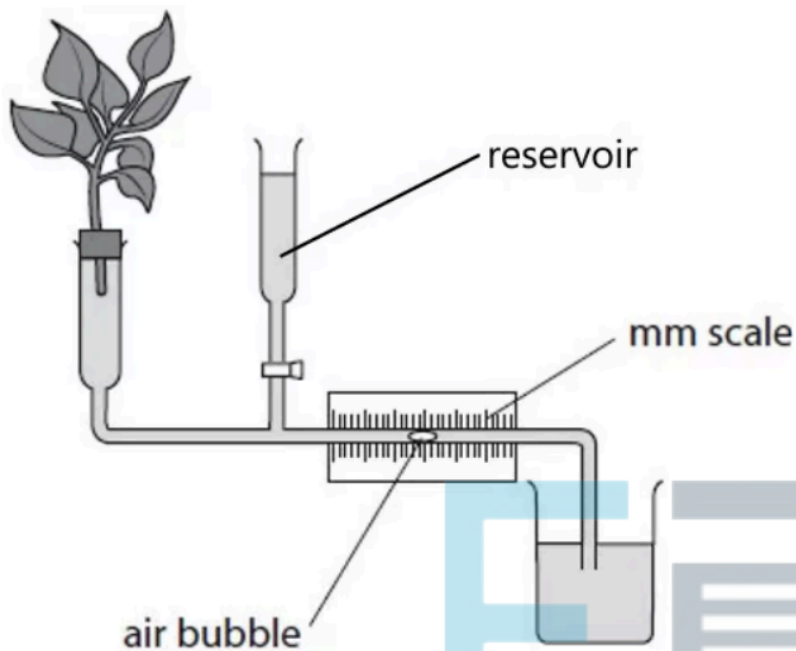
- A. A
- B. B
- C. C
- D. D

EXAM PAPERS PRACTICE [1 mark]

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****Question 3****

The diagram shows a potometer set up to measure the rate of transpiration in a piece of cut plant.



For a potometer with a cylindrical capillary of internal diameter d mm, the bubble was measured to travel h mm in an experiment time of s seconds.

Which is the correct formula to calculate the rate of transpiration (as a volume of water uptake per unit time) in this experiment?

- A. $\frac{\pi \left(\frac{d}{2}\right)^2 h}{s}$
B. $\frac{\pi d^2 h}{s}$
C. $\pi \left(\frac{d}{2}\right)^2 h s$
D. $\pi d^2 h s$

[1 mark]