

# Gas Exchange in Humans

## Mark Scheme 2

Level	IGCSE
Subject	Biology
Exam Board	CIE
Topic	Gas Exchange in Humans
Paper Type	(Extended) Theory Paper
Booklet	Mark Scheme 2

Time Allowed: 27 minutes

Score: /22

Percentage: /100

Question		Answers	Marks	Additional Guidance
1	(a)	lowered / flattened / AW ; increases / AW ; decreases / AW ; higher / greater / more ; into / inside; alveoli ;	6	
	(b)	(A / goblet cell) secretes / produces, mucus ; sticky ; collects / traps, particles (in the air) ;  cilia, move / beat / waft; mucus moves / removes, away from alveoli / out of trachea / towards larynx / towards mouth / AW ;	max 4	<i>ignore</i> hairs direction needed
			<b>[Total: 10]</b>	

CHEMISTRY ONLINE  
— TUITION —

- 2 (a) CAN AWARD ROLE WITHOUT CORRECT NAME  
CAN ACCEPT RIB CAGE IN B AND V.V.

part	name	role in breathing in
<b>A</b> ↑ ↓	ribs; Ⓐ rib cage	prevent collapse of thoracic cavity or lungs AW (as a result of pressure changes) AW/ ref. to attachment of muscles/ move up to + increase volume/decrease pressure; R space
<b>B</b>	intercostal muscle;	contracts + to move ribcage up or out/to increase volume of chest cavity or lungs AW/decrease pressure; Ⓡ refs to internal intercostals
<b>C</b>	diaphragm ;	contracts/moves downwards + to increase volume of chest cavity AW/decrease pressure ; Ⓡ ref. to 'space'

max. [6]

CHEMISTRY ONLINE  
— TUITION —

(b)(i)

- ref. to cilia + beat/move AW; (R) refs to hairs (R) cilia trap germs
- to move dust/mucus + up or out (of bronchus);
- ref. to secretion/production + of mucus;
- ref. to sticky nature AW;
- to trap + dust/bacteria; (linked to mucus)

max. [4]

(ii) NO MARK FOR AFFECT WITHOUT CORRECT NAMED SUBSTANCE  
1 MARK FOR THE SUBSTANCE, 1 MARK FOR EFFECT

(R) carbon monoxide

- nicotine;
- cilia + become paralysed/stop working AW ; (R) killed
- cilia unable to remove mucus from + bronchi/airways AW;
- cell lining AW can be infected by trapped microbes;

- tar;
- ref. to cells become cancerous AW;
- increased production of mucus;
- cilia + become paralysed/stop working AW; (R) killed

- carbon particles;
- increased production of mucus;

max. [2]

**Total: [12]**