

9.1 The Gas Exchange System

Question Paper

Course	CIE A Level Biology (9700) exams from 2022
Section	9. Gas Exchange
Topic	9.1 The Gas Exchange System
Difficulty	Easy

Time allowed: 10

Score: /10

Percentage: /100

Question 1

Goblet, squamous epithelial and ciliated cells are found in various structures that make up the human lung.

Where are these cells located?

	Goblet	Squamous Epithelial	Ciliated
A	pulmonary vein	alveolus	trachea
B	bronchus	bronchiole	trachea
C	trachea	alveolus	bronchiole
D	bronchiole	pulmonary vein	bronchus

[1 mark]

Question 2

Which fact about alveoli and blood capillaries does not lead to an increased efficiency of gaseous exchange in the lungs?

- A** The walls of the capillaries and alveoli are coated in surfactant
- B** The walls of the capillaries and alveoli are very thin
- C** Capillaries and alveoli have a large total surface area
- D** The blood flow slows as it passes through pulmonary capillaries

[1 mark]

Question 3

Goblet cells and ciliated epithelium are both found in which structures in the respiratory system?

	bronchioles	bronchi	trachea
A	Y	Y	N
B	Y	N	N
C	N	N	Y
D	N	Y	Y

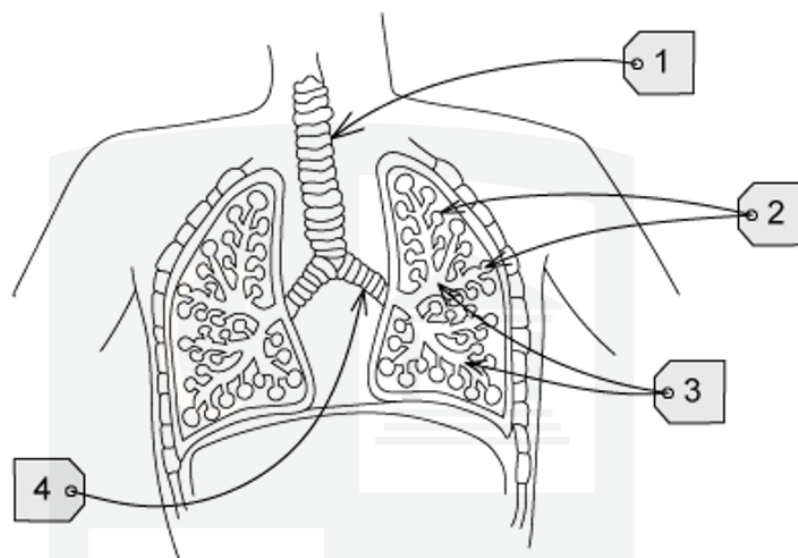
Key: **Y** = both found **N** = both not found

[1 mark]

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Question 4

Correctly label the structures in the human respiratory system.



	1	2	3	4
A	bronchus	trachea	vein	bronchiole
B	bronchus	alveoli	vein	bronchiole
C	trachea	alveoli	bronchus	bronchiole
D	trachea	alveoli	bronchiole	bronchus

[1 mark]

Question 5

What is the function of elastic fibres in the lungs?

- A** They increase in the walls of alveoli as a result of the release of the enzyme elastase
- B** They prevent the walls of the alveoli from collapsing as air is breathed in
- C** They allow the walls of stretched alveoli to recoil as air is breathed out.
- D** They increase in the walls of the alveoli as emphysema develops.

[1 mark]

Question 6

Which row correctly describes the pulmonary artery?

	blood carried	lumen size	muscle in walls
A	oxygenated	small	thick
B	oxygenated	large	thin
C	deoxygenated	small	thick
D	deoxygenated	large	thin

[1 mark]

Question 7

Which row correctly gives the approximate diameters of the alveolus, trachea, bronchus and bronchiole within a human lung?

	alveolus (mm)	trachea (mm)	bronchiole (mm)	bronchus (mm)
A	0.25	12	0.50	18
B	0.25	18	0.50	12
C	0.50	12	0.25	18
D	0.50	18	0.25	12

[1 mark]

Question 8

Which function is paired with the incorrect cell or tissue?

	function	cell / tissue
A	destroys bacteria by producing enzymes	goblet cells
B	reinforces the trachea	cartilage
C	constricts bronchioles	smooth muscle
D	moves mucus over the surface of the trachea	ciliated epithelial cells

[1 mark]

Question 9

What are the correct functions of the named tissues of the gas exchange system?

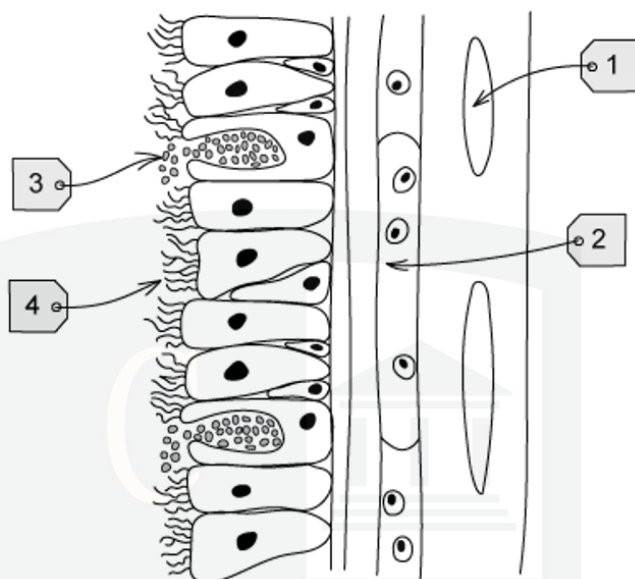
	smooth muscle	cartilage	ciliated epithelium	elastic fibres
A	controls the air flow to and from the alveoli	supports small bronchioles	traps bacteria and dirt in the air	allows the trachea to stretch
B	contracts to increase air flow	prevents choking	secretes mucus	supports the trachea
C	changes the diameter of bronchioles	keeps airways open	moves mucus out of airways	enables alveoli expand during inhalation
D	traps bacteria and dirt in the air	prevents trachea from collapsing when coughing	keeps a layer of mucus lining in the air ways	causes elastic recoil when exhaling

[1 mark]

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Question 10

The diagram shows a cross-section of a bronchus wall (not to scale).



Which row correctly labels the diagram?

	1	2	3	4
A	smooth muscle	elastic fibres	phagocyte	squamous endothelium
B	cartilage	smooth muscle	goblet cell	ciliated epithelium
C	smooth muscle	elastic fibres	phagocyte	ciliated epithelium
D	cartilage	smooth muscle	goblet cell	squamous endothelium

[1 mark]