

Gas Exchange

Question Paper 1

Level	A Level
Subject	Biology
Exam Board	Edexcel
Topic	Exchange and Transport
Sub Topic	Gas Exchange
Booklet	Question Paper 1

Time Allowed: 53 minutes

Score: /44

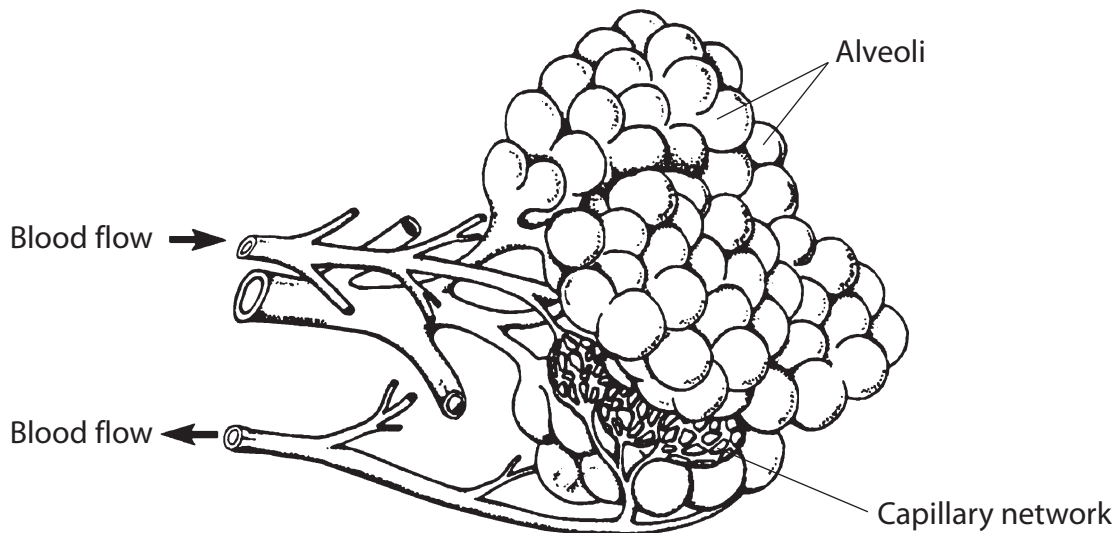
Percentage: /100

Grade Boundaries:

A*	A	B	C	D	E	U
>85%	77.5%	70%	62.5%	57.5%	45%	<45%

1 The lungs in a mammal are adapted for efficient gas exchange.

(a) The diagram below illustrates a small part of the lung responsible for gas exchange.



(i) On the diagram, add a line labelled P to a branch of the pulmonary vein.

(1)

(ii) Give **one** difference between the structure of a capillary and the structure of a vein.

(1)

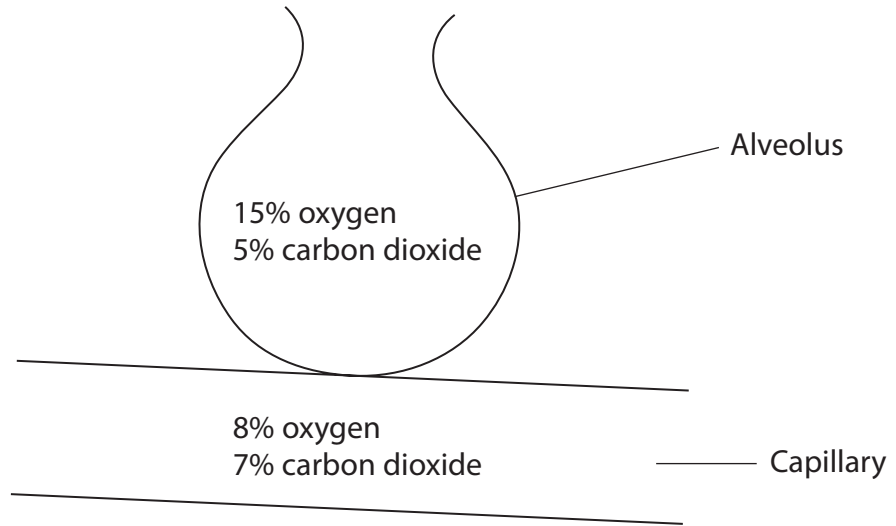
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(b) The diagram below represents the approximate concentrations of oxygen and carbon dioxide inside an alveolus and a capillary in the lungs.

These gases will diffuse at different rates.



Using the information in the diagram, explain the difference in the rate of diffusion of these gases.

(2)

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- (ii) The percentage of strains of *Mycobacterium tuberculosis* resistant to the antibiotic INH has increased during these three years.

Suggest how natural selection could have resulted in this increase.

(3)

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- (iii) Suggest how hospitals could prevent an increase in the percentage of strains of *Mycobacterium tuberculosis* resistant to antibiotics.

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(Total for Question 2 = 12 marks)

- (b) *Daphnia* have a circulatory system with a heart that pumps blood into cavities surrounding their organs.

The photograph below shows the location of the heart in a *Daphnia*.



Magnification $\times 25$

- (i) Suggest how the heart of a *Daphnia* enables organs to carry out effective gas exchange.

(2)

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(ii) In mammals, blood passes through the heart twice for each circulation of the body.

Suggest how this type of circulation enables mammals to carry out effective gas exchange.

(3)

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(Total for Question 3 = 10 marks)

