



EXAM PAPERS PRACTICE

# Transport in Cell

Level: GCSE AQA 8461

Subject: Biology

Exam Board: Suitable for all boards

Topic: Transport in Cell

Level: Easy

This is to be used by all students preparing for AQA Biology 8461 foundation or higher tier but it is also suitable for students of other boards

**Q1.** What will happen if a spray of perfume is released into one corner of a room?

- a. Particles of the perfume will move by osmosis but remain most concentrated in the corner where they were sprayed
- b. Particles of the perfume will diffuse until they are spread evenly through the room
- c. The movement of the particles of the perfume will be limited so they will remain concentrated in the corner of the room

(1)

**Q2.** Which factor will decrease the rate of diffusion across a membrane?

- a. Increasing the surface area of the membrane
- b. Increasing the differences in concentration outside and inside the membrane
- c. Decreasing the temperature

(1)

**Q3.** What is the surface area to volume ratio of a cube with sides 7 cm?

- a. 0.86
- b. 1
- c. 1.17

(1)

**Q4.** What happens to red blood cells when they are placed in water?

- a. They shrivel as water is lost by osmosis
- b. The cells are unchanged as water moves in and out by osmosis
- c. The cells swell up and burst

**Q5.** Substances can move into and out of cells.

- (a) (i) How does oxygen move into and out of cells?

Draw a ring around **one** answer.

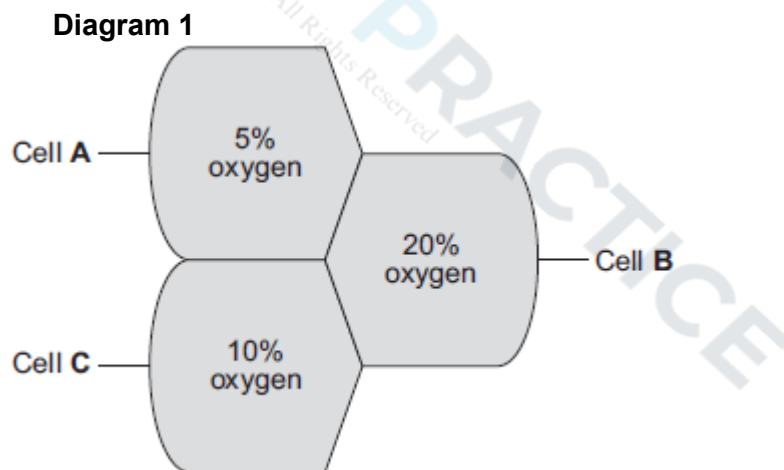
diffusion

digestion

photosynthesis

(1)

- (ii) **Diagram 1** shows the percentage concentration of oxygen in three cells, **A**, **B** and **C**.



Oxygen can move from cell to cell.

Into which cell, **A**, **B** or **C**, will oxygen move the fastest?

(1)

(b) (i) How does water move into and out of cells?

Draw a ring around **one** answer.

**breathing**

**osmosis**

**respiration**

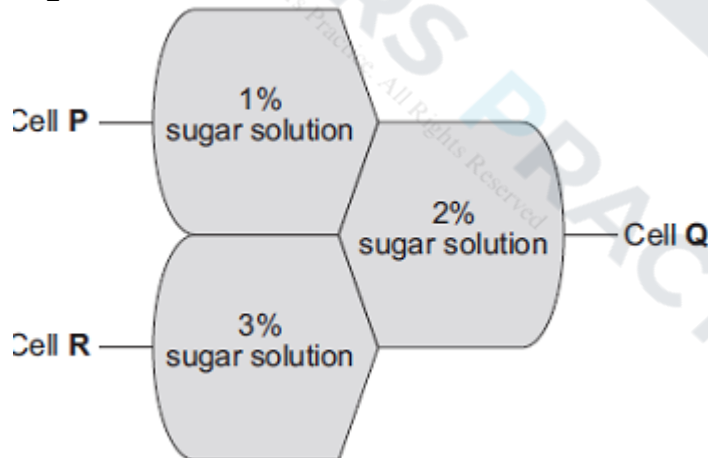
(1)

(ii) Differences in the concentration of sugars in cells cause water to move into or out of cells at different rates.

**Diagram 2** shows three different cells, **P**, **Q** and **R**.

The information shows the percentage concentration of sugar solution in cells **P**, **Q** and **R**.

**Diagram 2**

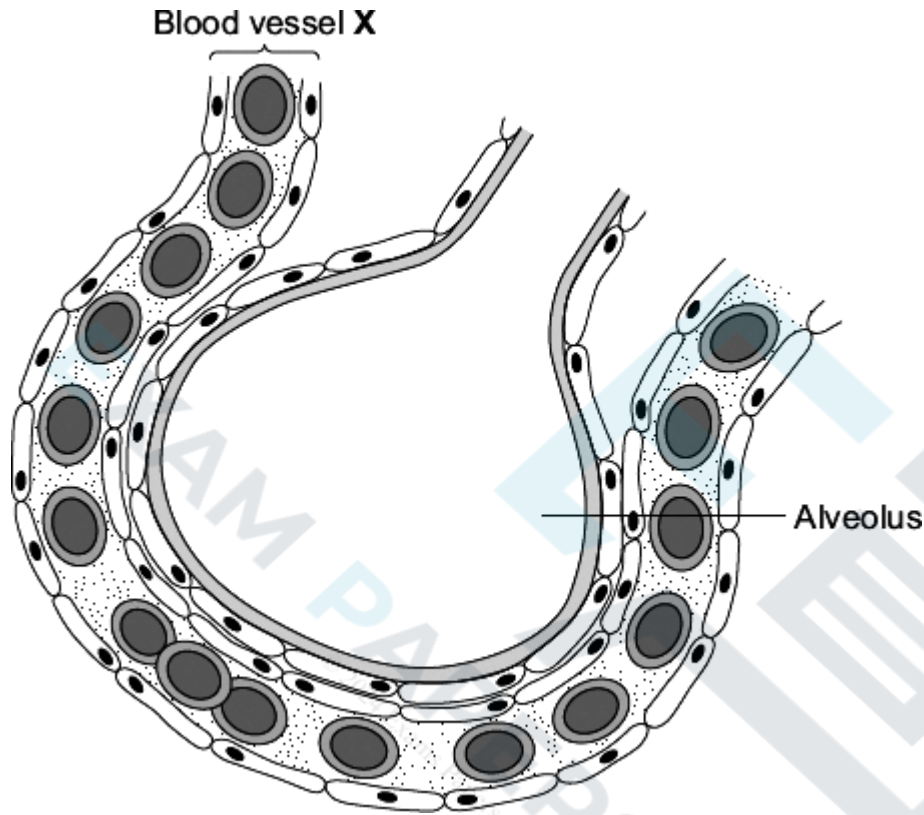


Water can move from cell to cell.

Into which cell, **P**, **Q** or **R**, will water move the fastest?

(1)  
(Total 4 marks)

Q6. The diagram shows an alveolus and a blood vessel in the lung.



(a) Draw a ring around the correct answer to complete each sentence.

(i) Blood vessel X is

- an artery.
- a capillary.
- a vein.

(ii) Gases pass across the wall of the alveolus by

- diffusion.
- evaporation.
- fermentation.

(1)

(1)

- (iii) The table compares the concentrations of some gases in inhaled air and exhaled air.

Complete the table.  
 Write 'lower' or 'higher' in each box.  
 One line has been completed for you as an example.

Gas	Concentration	
	Inhaled air	Exhaled air
Water vapour	lower	higher
Carbon dioxide		
Oxygen		

(2)

- (b) Draw a ring around the correct answer to complete each sentence.

- (i) Oxygen is carried in the blood mainly in

blood plasma. red blood cells. white blood cells.
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(1)

- (ii) In the blood, the oxygen combines with

carbon dioxide. haemoglobin. urea.
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(1)  
 (Total 6 marks)

**Q7.**After a meal rich in carbohydrates, the concentration of glucose in the small intestine changes.

The table below shows the concentration of glucose at different distances along the small intestine.

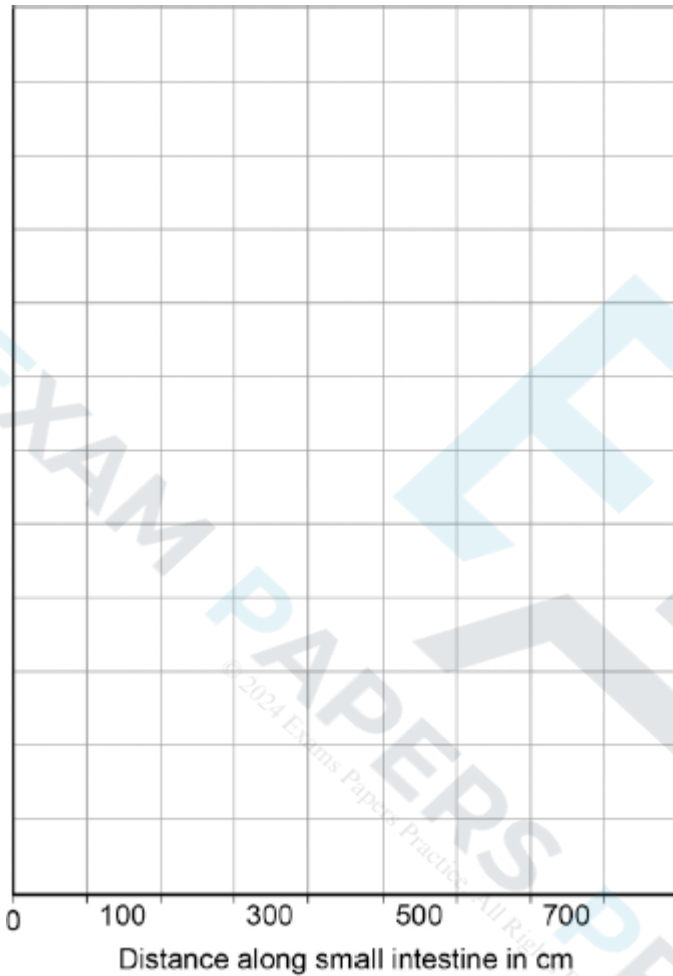
Distance along the small intestine in cm	Concentration of glucose in mol dm <sup>-3</sup>
100	50
300	500
500	250
700	0

(a) At what distance along the small intestine is the glucose concentration highest?  
..... cm

(1)

(b) Use the data in the table to plot a bar chart on the graph below.

- Label the y-axis.
- Choose a suitable scale.



(4)

(c) Look at the graph above.

Describe how the concentration of glucose changes as distance increases along the small intestine.

.....

.....

.....

.....

(2)

(d) Explain why the concentration of glucose in the small intestine changes between 100 cm and 300 cm.



.....  
.....  
.....  
.....  
.....  
.....

(2)

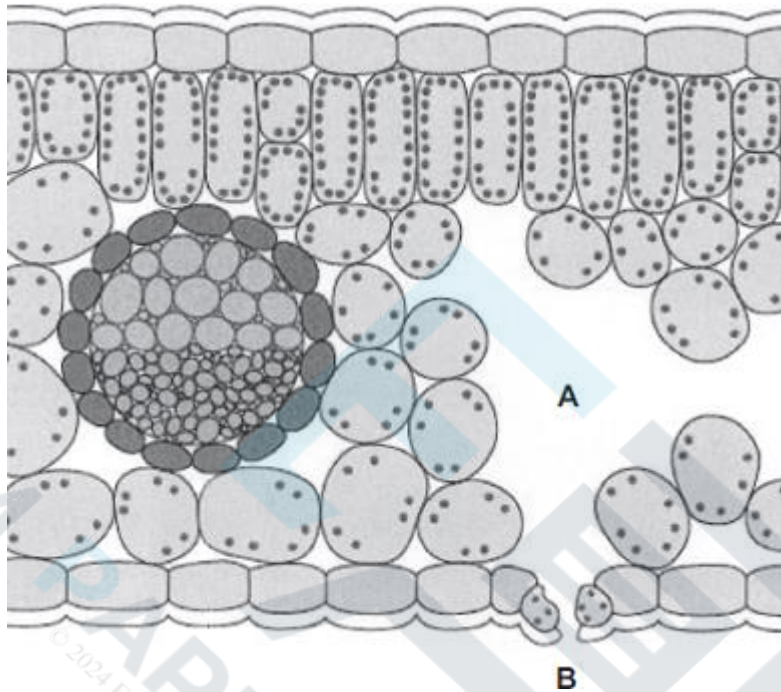
- (e) Explain why the concentration of glucose in the small intestine changes between 300 cm and 700 cm.

.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....

(3)

(Total 12 marks)

**Q8.** The diagram shows a section through a plant leaf.



(a) Use words from the box to name **two** tissues in the leaf that transport substances around the plant.

epidermis	mesophyll	phloem	xylem
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..... and  
 .....

(1)

(b) Gases *diffuse* between the leaf and the surrounding air.

(i) What is *diffusion*?

.....  
 .....

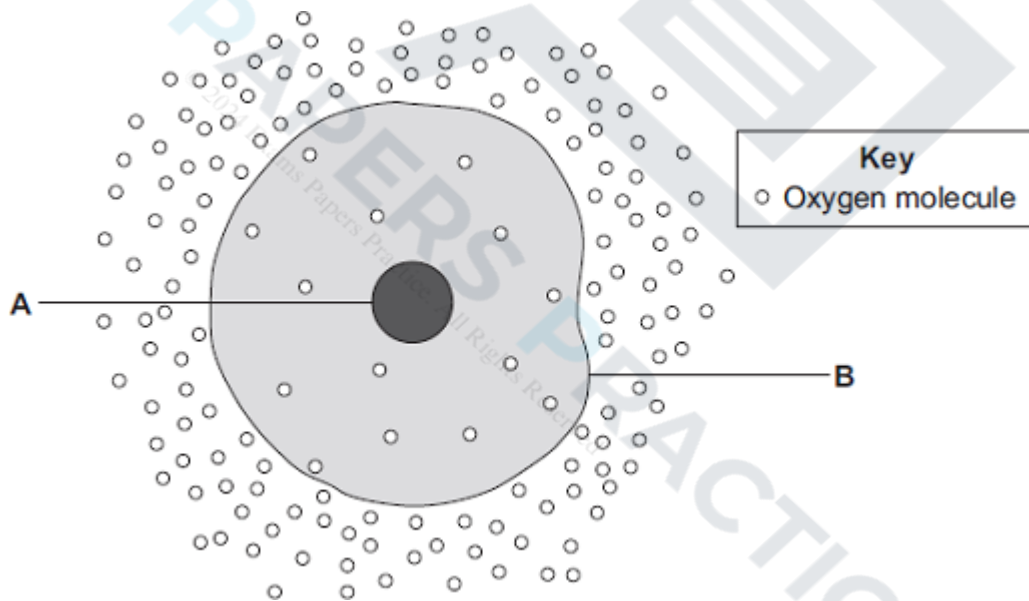
(2)

(ii) Name **one** gas that will diffuse from point **A** to point **B** on the diagram on a sunny day.

.....

(1)  
(Total 4 marks)

**Q8.**The diagram shows a cell.



(a) (i) Use words from the box to name the structures labelled **A** and **B**.

cell membrane      chloroplast      cytoplasm      nucleus

**A** .....

**B** .....

(2)

(ii) The cell in the diagram is an animal cell.

How can you tell it is an animal cell and **not** a plant cell?

Give **two** reasons.

1 .....

.....

2 .....

.....

(2)

(b) Oxygen will diffuse into the cell in the diagram.

Why?

Use information from the diagram.

.....

.....

(1)

(c) The cell shown in the diagram is usually found with similar cells.

Draw a ring around the correct answer to complete the sentence.

Scientists call a group of similar cells

an organ.

a system.

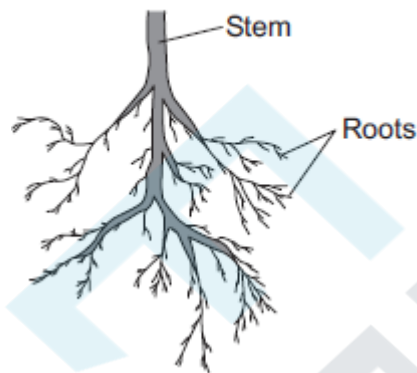
a tissue.

(1)

(Total 6 marks)

**Q9.**Plants need different substances to survive. **Figure 1** shows the roots of a plant.

**Figure 1**



- (a) (i) Mineral ions are absorbed through the roots.

Name **one** other substance absorbed through the roots.

.....

(1)

- (ii) The plant in **Figure 1** has a higher concentration of mineral ions in the cells of its roots than the concentration of mineral ions in the soil.

Which **two** statements correctly describe the absorption of mineral ions into the plant's roots?

Tick ( ) **two** boxes.

The mineral ions are absorbed by active transport.

The mineral ions are absorbed by diffusion.

The mineral ions are absorbed down the concentration gradient.

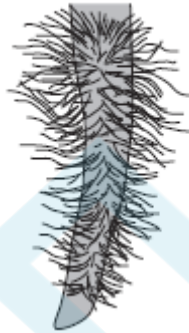
The absorption of mineral ions needs energy.

(2)

(iii) The plant in **Figure 1** has roots adapted for absorption.

**Figure 2** shows a magnified part of a root from **Figure 1**.

**Figure 2**



Describe how the root in **Figure 2** is adapted for absorption.

.....

.....

.....

.....

(2)

(b) The leaves of plants have stomata.

What is the function of the stomata?

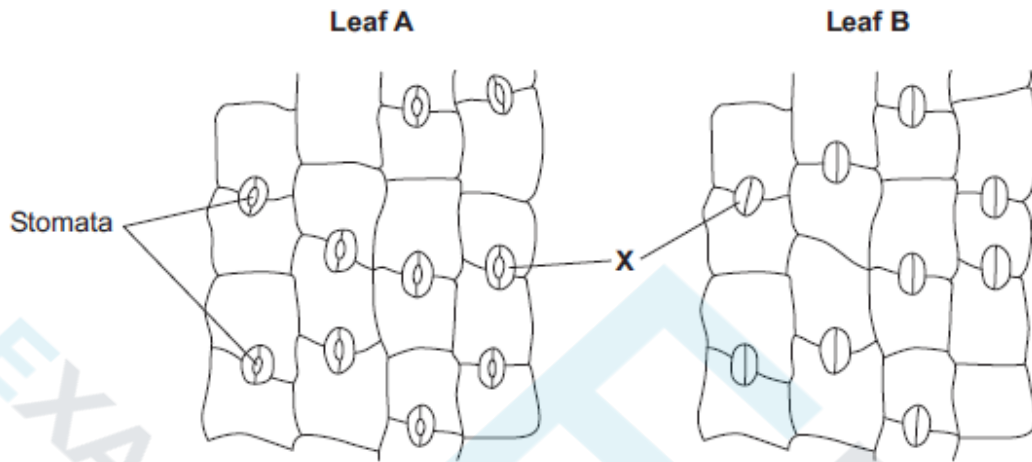
.....

.....

(1)

(c) **Figure 3** shows the underside of two leaves, **A** and **B**, taken from a plant in a man's house.

**Figure 3**



(i) In **Figure 3**, the cells labelled **X** control the size of the stomata.

What is the name of the cells labelled

**X**? Tick ( ) **one** box.

Guard cells

Phloem cells

Xylem cells

(1)

(ii) Describe how the appearance of the stomata in leaf **B** is different from the appearance of the stomata in leaf **A**.

.....

...

.....

...

(1)

(iii) The man forgets to water the plant.

What might happen to the plant in the next few days if the stomata stay the same as shown in leaf **A** in **Figure 3**?

.....

.....

(1)

**Q10.** Substances can move into cells and out of cells.

(Total 9 marks)

(a) Draw a ring around the correct answer to complete each sentence.

Water moves into cells and out of cells by

- active transport.
- osmosis.
- reabsorption.

The water moves through a

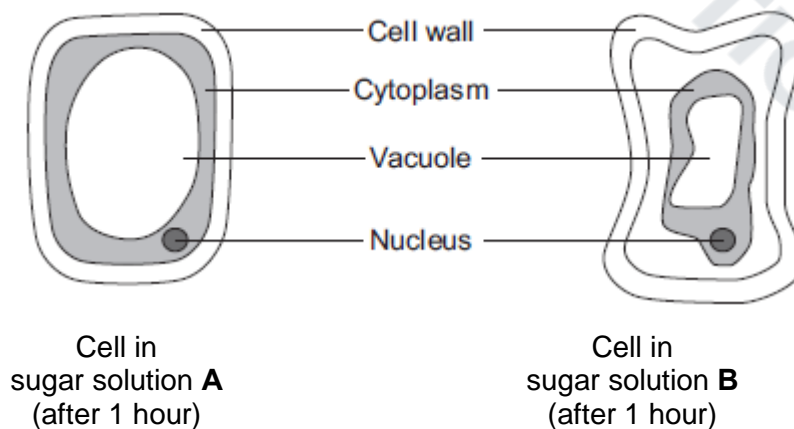
- freely permeable
- non-permeable
- partially permeable

membrane.

(2)

(b) Students put plant cells into two different strengths of sugar solutions, **A** and **B**.

The diagram below shows what the cells looked like after 1 hour.





- (i) Describe **two** ways in which the cell in sugar solution **B** is different from the cell in sugar solution **A**.

1 .....

.....

2 .....

.....

(2)

- (ii) A student put red blood cells into water.  
Suggest what would happen to the cells.

.....

.....

.....

(1)

- (c) In the human body, glucose is absorbed into the blood from the small intestine.  
The small intestine contains many villi.  
Which **two** of the following help the absorption of glucose in the small intestine?

Tick (✓) **two** boxes.

Villi have a cell wall.

Villi are covered in thick mucus.

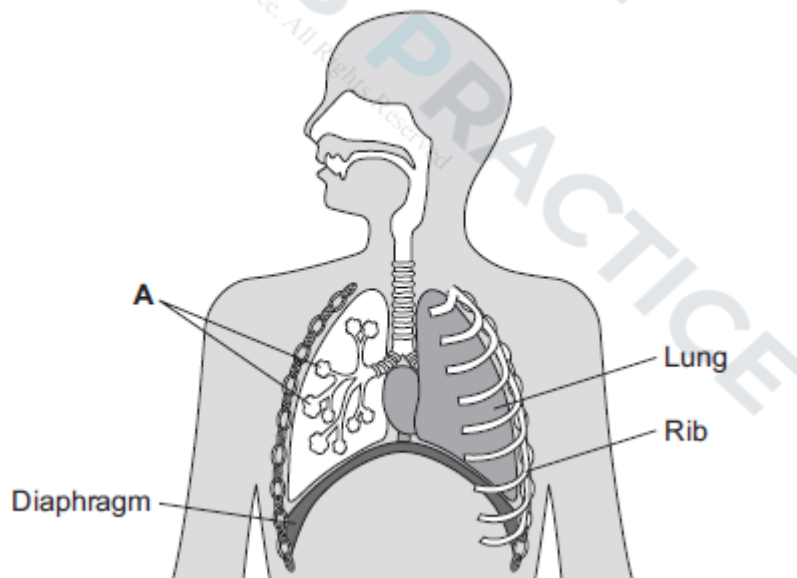
Villi give the small intestine a large surface area.

Villi have many blood capillaries.

(2)  
(Total 7 marks)

**Q11.**Our lungs help us to breathe.

The image below shows the human breathing system.



(a) (i) Name part **A**.

.....

(1)

(ii) Give **one** function of the ribs.

.....

(1)

(b) (i) Use the correct answer from the box to complete the sentence.

<b>active transport</b>	<b>diffusion</b>	<b>osmosis</b>
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Oxygen moves from the air inside the lungs into the blood by the process of .....

(1)

(ii) Use the correct answer from the box to complete the sentence.

<b>arteries</b>	<b>capillaries</b>	<b>veins</b>
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Oxygen moves from the lungs into the blood through the walls of the .....

(1)

(iii) Inside the lungs, oxygen is absorbed from the air into the blood.

Give **two** adaptations of the lungs that help the rapid absorption of oxygen into the blood.

1 .....

.....

2 .....

.....

(2)

(Total 6 marks)