# B1 L8 Diffusion: Exam questions worksheet

AQA GCSE Combined Science: Trilogy (8464) and Biology (8461)
Biology Paper 1 · Topic B1 Cell biology

Name _____ Class _____

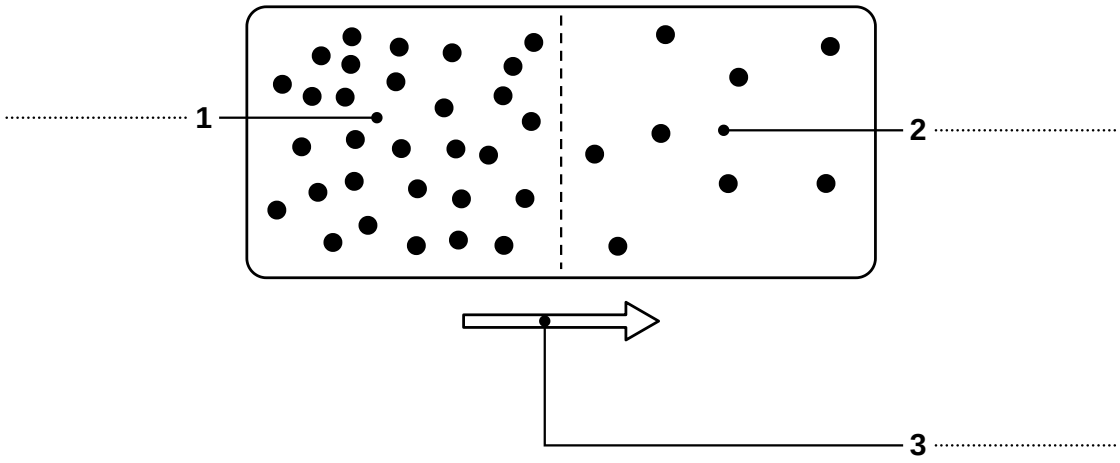
**Total:** ..... / 20

**Instructions**
- Answer **all** questions in the spaces provided.
- Use black ink or black ball-point pen.
- The marks for each question are shown in brackets.
- In calculations, show clearly how you work out your answer.
- Time: about 25 minutes.

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**0 1** **Figure 1** shows particles of a substance dissolved in water.

**Figure 1**




**0 1 . 1** **Complete Figure 1**. [3 marks]

Choose answers from the box.

| |
|---|
| cell wall higher concentration lower concentration net movement osmosis |

**0 1 . 2** Which statement about diffusion is correct? [1 mark]

Tick (✓) **one** box.

- Diffusion needs energy from respiration. ☐
- Diffusion happens in gases and in solutions. ☐
- In diffusion, every particle moves in the same direction. ☐
- Particles stop moving when they are evenly spread. ☐

Do not write outside the box

**0 2** A student investigated how the concentration of a dye affects how far it diffuses through agar jelly.

- The student cut a hole (a well) in a dish of agar jelly.
- The student filled the well with a dye solution.
- After 30 minutes, the student measured the distance the dye had moved from the edge of the well.
- The student did this for four different concentrations of the dye.

**Figure 2**

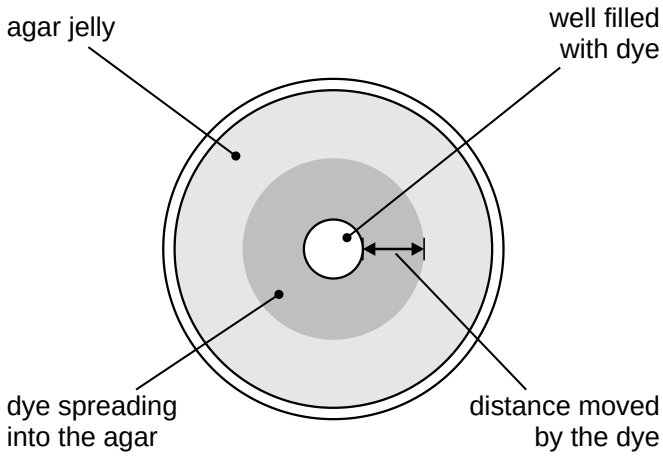



**Table 1**

| Concentration of dye in % | Distance moved by the dye in 30 minutes in mm |
|---|---|
| 1 | 3.0 |
| 2 | 4.5 |
| 4 | 6.0 |
| 8 | 7.5 |

**0 2 . 1** **Calculate** the rate of diffusion of the 8 % dye. [2 marks]

Use the equation:

rate of diffusion = distance ÷ time

Give your answer in mm per minute.

Rate of diffusion = ..... mm per minute

**Question 2 continues on the next page**

Do not write outside the box



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**0 2 . 2** **Describe** how the concentration of the dye affects the distance it moves. [1 mark]

Use **Table 1**.

.....

.....

**0 2 . 3** **Explain** why the 8 % dye moved the furthest. [2 marks]

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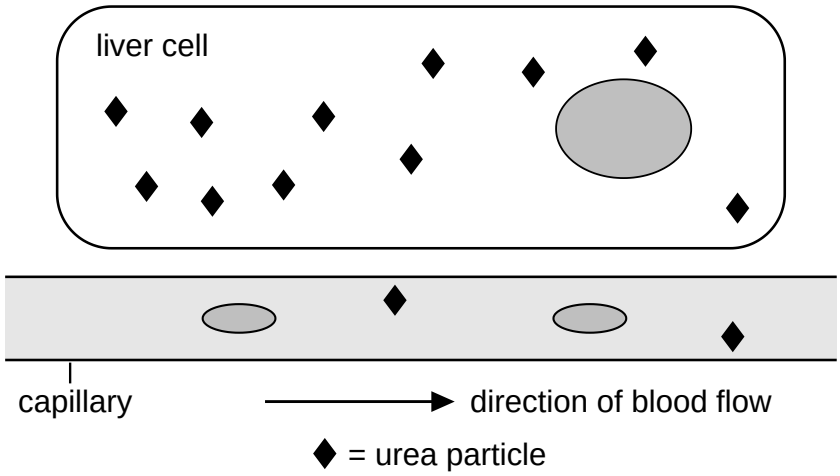
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**0 3** Liver cells make urea.

**Figure 3** shows a liver cell next to a capillary. Each ◆ is a particle of urea.

**Figure 3**




**0 3 . 1** The kidneys remove urea from the body. This is an example of excretion. [1 mark]

What is meant by **excretion**?

.....

.....

**0 3 . 2** **Explain** why urea diffuses from the liver cell into the blood. [2 marks]

Use **Figure 3**.

.....

.....

.....

Do not write outside the box

**0 4** A student put a drop of food colouring into a beaker of cold water. [2 marks]

The student put another drop into a beaker of hot water.

Neither beaker was stirred.

The colour spread out faster in the hot water.

**Explain** why.

**0 5** Body cells need a constant supply of oxygen for respiration. [6 marks]

Oxygen diffuses from the blood into the cells.

Carbon dioxide diffuses from the cells into the blood.

**Explain** how the concentration gradients of oxygen and carbon dioxide between the blood and the body cells are kept steep, and why this is important for the cells.

Do not write outside the box

**END OF QUESTIONS**

There are no more questions in this paper. Original practice paper © sciencegcse.co.uk – free to use for non-commercial education. Not an AQA paper.