AQA, OCR, Edexcel

GCSE Science

GCSE Biology

Diffusion Answers

Name:

M M E

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Total Marks: /18

Q1: What is the definition of diffusion?

A= Movement of particles across a concentration gradient.

(1 mark)

Q2: Draw an arrow to show the concentration movement in diffusion.

A= mark awarded for correct direction of arrow.

(1 mark)

Q3: Give 2 examples of diffusion occurring in the body.

A= Any 2 of the following:

- Gas exchange/ Lungs
- Waste products
- Intestine – Food molecules
- Blood plasma/ Urea/ Kidneys

(2 marks)

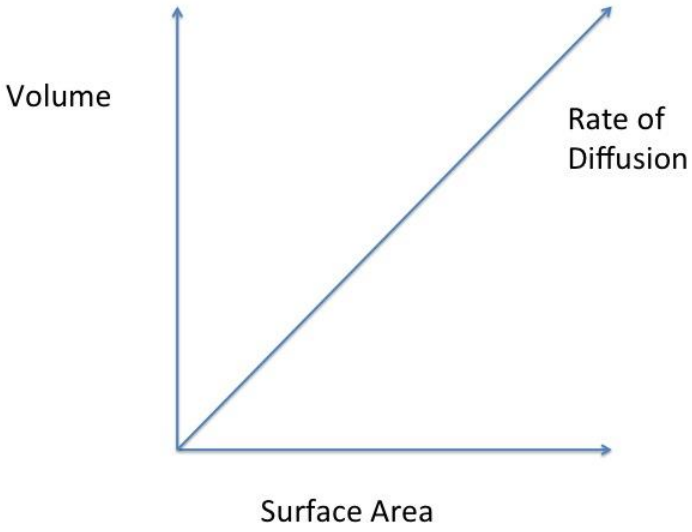
Q4: Two students want to design an experiment to investigate the rate of diffusion in the lungs. What variables could the students change to see the effects on diffusion rate?

A= 1 mark awarded for each point:

- Different concentration/ concentration gradient
- Temperature
- Surface area of the membrane

(3 marks)

Q5: Using the graph below, plot what the rate of diffusion would be.



A= 1 mark awarded for correct line

1 mark awarded for labelling of the graph

(2 marks)

Q6: Explain why the lungs are highly specialised to use oxygen molecules by diffusion.

A= 3 marks awarded for 3 of the following:

- Large surface area to volume ration
- Lots of alveoli
- Large volume
- Thin surface area
- Short diffusion path

(3 marks)

Q7: Name 2 substances that leave the cell by diffusion.

A= 1 mark for each point

- Waste products
- Carbon dioxide

(2marks)

Q8: Cells surface to volume ration can be calculated using cubes as examples.

	1cm	2cm	3cm
Surface Area (cm^2)	6	24	54
Volume (cm^3)	1	8	27
Surface Area: Volume	6:1	3:1	2:1

i) Using the table above calculate and fill in the surface area to volume ratio.

A= 3 marks for the correct answers in the table above.

(3 marks)

ii) Which cell has the most efficient surface area to volume ratio?

A= Cell - 1

(1 mark)

Q9: Explain how the digestive system has adapted to provide efficient diffusion in the intestine.

A= 5 marks to be awarded for the points below:

- Villi
- Thin walls/ One cell thick
- Large surface area
- Large amounts of blood vessels
- Villi is folded for maximum surface area

(6 marks)