AQA B3.2 Transport systems in plants and animals LEVEL 2

11 minutes

11 marks

Q1. A student removed three similar leaves from a plant. The student spread petroleum jelly (a waterproofing substance) on some of the leaves, as follows:

Leaf A: on the lower surface

Leaf B: on the upper surface

Leaf C: none.

The student placed each leaf in a separate beaker. He weighed each beaker at intervals. The results are shown in the table.

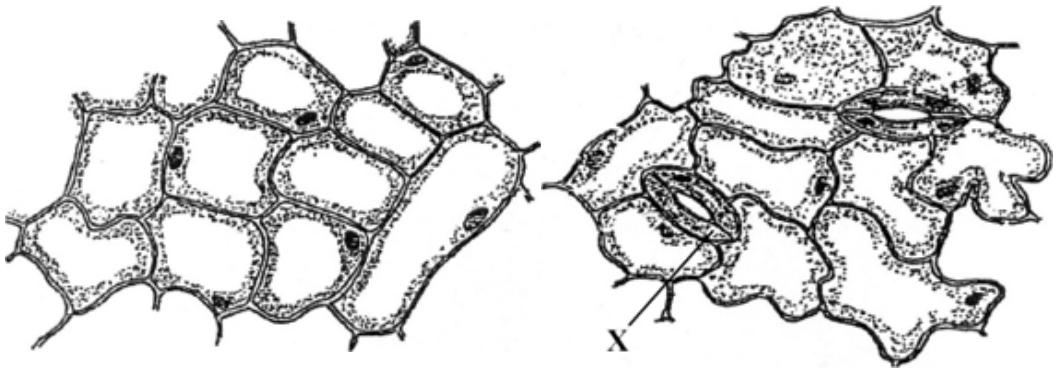
Time in hours	Mass of leaf + beaker in grams		
	Leaf A	Leaf B	Leaf C
0	50.00	55.01	51.99
0	49.99	54.95	51.90
3	49.97	54.90	51.85
5	49.95	54.86	51.80

(a) Which leaf, **A**, **B** or **C**, lost most water? ☐

(1)

(b) The diagram shows the appearance of the upper and lower surfaces of one of the leaves under a microscope.

Upper surface of leaf **Lower surface of leaf**



(i) Name cell **X**. .....

(1)

(ii) The petroleum jelly had a greater effect when it was spread on the lower surface than when it was spread on the upper surface.

Use information from the diagram to explain why.

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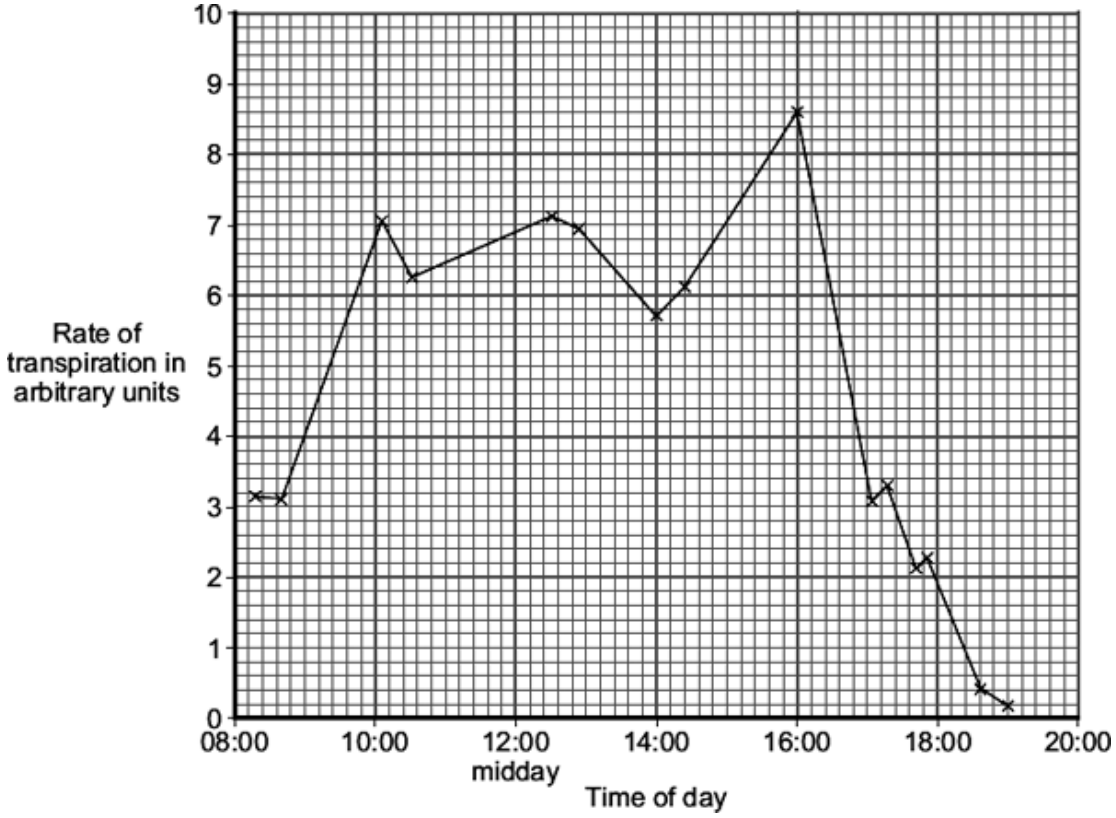
(2)
(Total 4 marks)

Q2. The graph shows the rate of transpiration from a plant at different times of the day.



Transpiration occurs mainly in the leaves of a plant.

(a) (i) What is *transpiration*?

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(2)

(ii) Through which part of a leaf does most transpiration occur?

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(1)

(b) In this investigation, the rate of transpiration decreases between 16:00 hours and 19:00 hours.

(i) Calculate the average rate of decrease per hour in the rate of transpiration over this time.

Show clearly how you work out your answer.

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Rate = ... arbitrary units per hour

(2)

(ii) Suggest **one** explanation for the decrease in the rate of transpiration between 16:00 hours and 19:00 hours.

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(2)

(Total 7 marks)