# Transport

## Question Paper

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| Level | Pre U |
| Subject | Biology |
| Exam Board | Cambridge International Examinations |
| Topic | The Life of Plants |
| Sub Topic | Transport |
| Booklet | Question Paper |

**Time Allowed:** **26 minutes**

**Score:** **/21**

**Percentage:** **/100**

## Part - A

**1** Fig. 6.1 is a scanning electronmicrograph of xylem vessels.

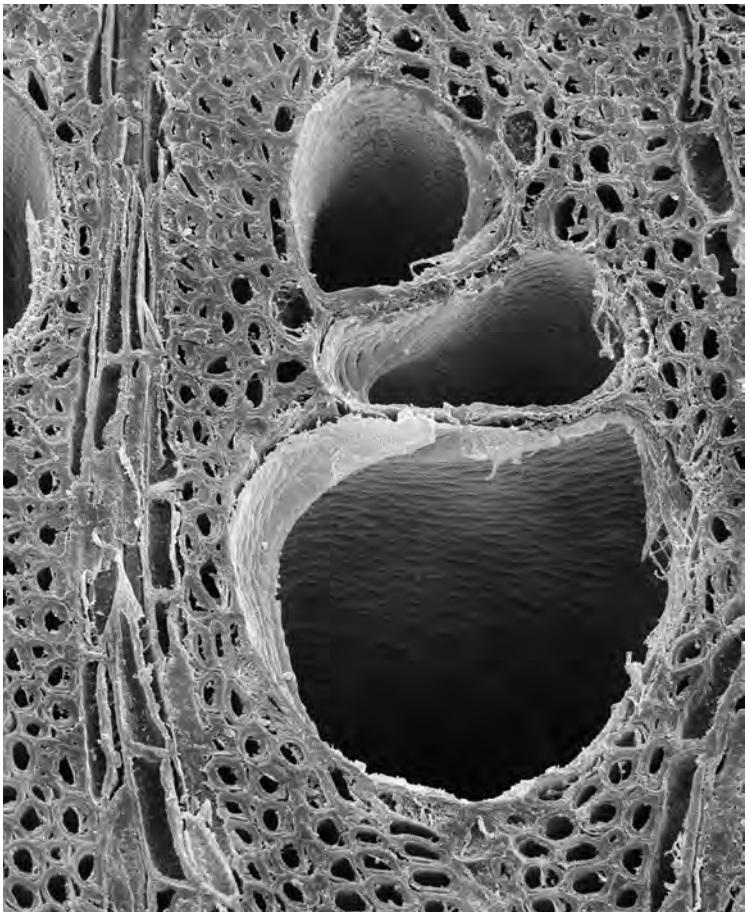

**Fig. 6.1**

**(a)** Describe how xylem vessels, such as those shown in Fig. 6.1, are adapted to their functions.

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Fig. 6.2 shows the masses of water transpired and the masses of water absorbed by loblolly pine, *Pinus taeda*, and prickly pear cactus, *Opuntia ficus-indica*, over a 24 hour period.

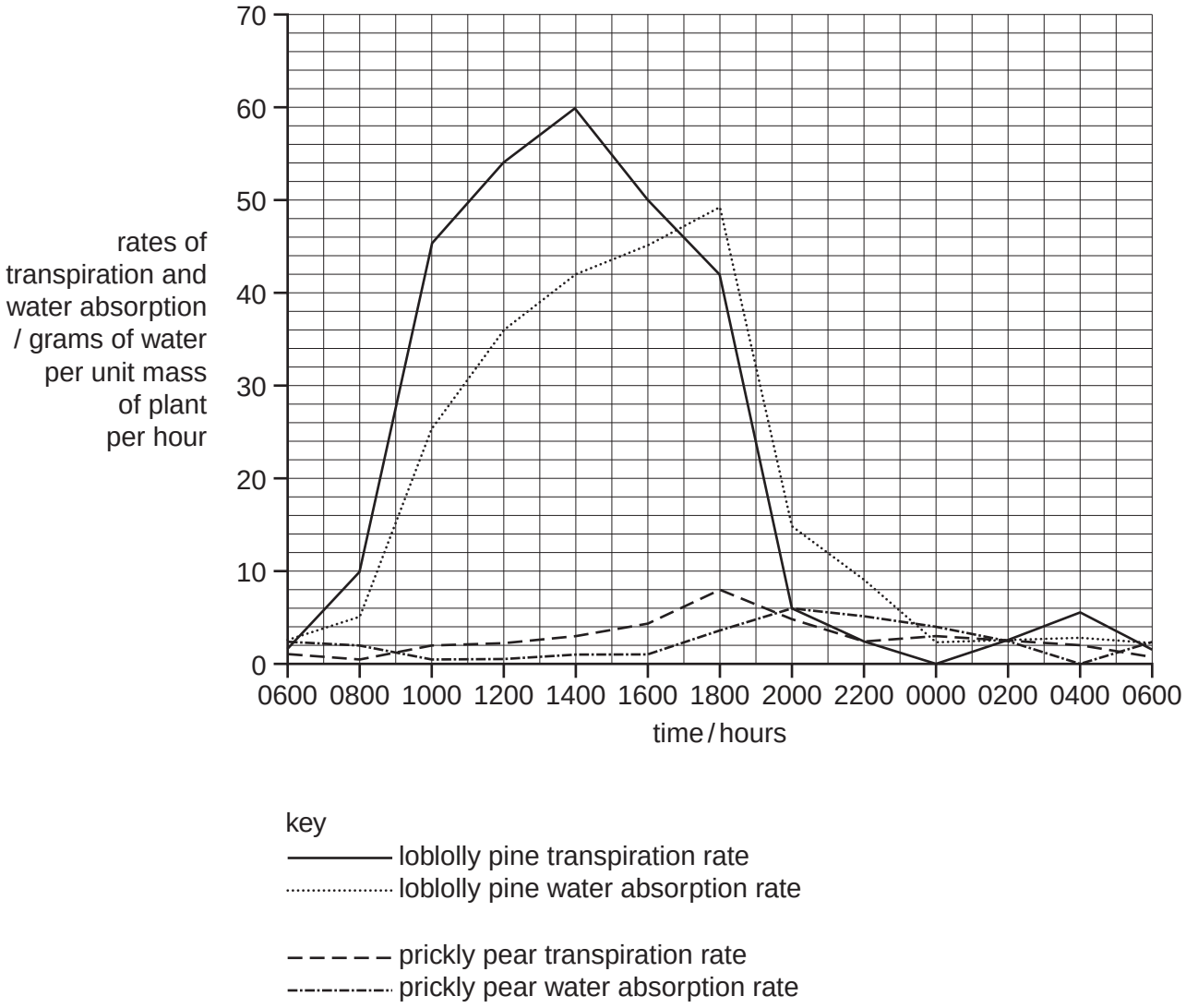


**Fig. 6.2**

**(b) (i)** Describe **and** explain the patterns of transpiration and water absorption in loblolly pine.

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**(ii)** Suggest why the patterns of transpiration and water absorption for prickly pear are **not** the same as for loblolly pine.

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**[Total: 11]**

**2** Fig. 23.1 is a photomicrograph of the lower epidermis of the leaf of an oleander, *Nerium oleander*. Fig. 23.2 is a photomicrograph of the lower epidermis of the leaf of a privet, *Ligustrum vulgare*. Both photomicrographs are to the same scale.

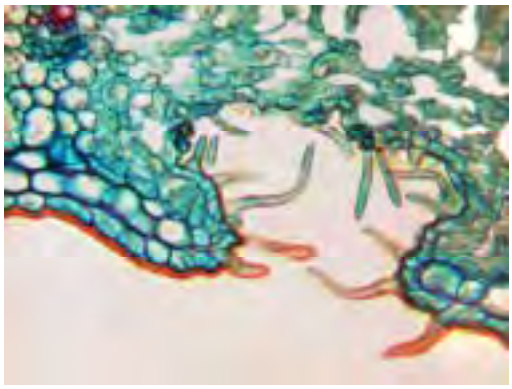

**Fig. 23.1**

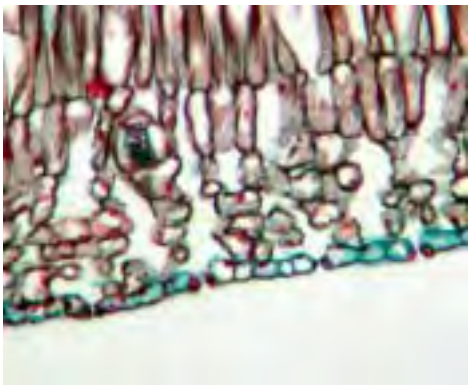

**Fig. 23.2**

**(a)** State two ways, visible in Fig. 23.1 and Fig. 23.2, in which the epidermis of oleander differs from the epidermis of privet. In each case explain how oleander is adapted to survive severe drought conditions.

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The concentration of three ions, potassium, chloride and phosphate, were determined in guard cells of closed and open stomata. Fig. 23.3 shows these concentrations measured in arbitrary units, which are the same for all three ions.

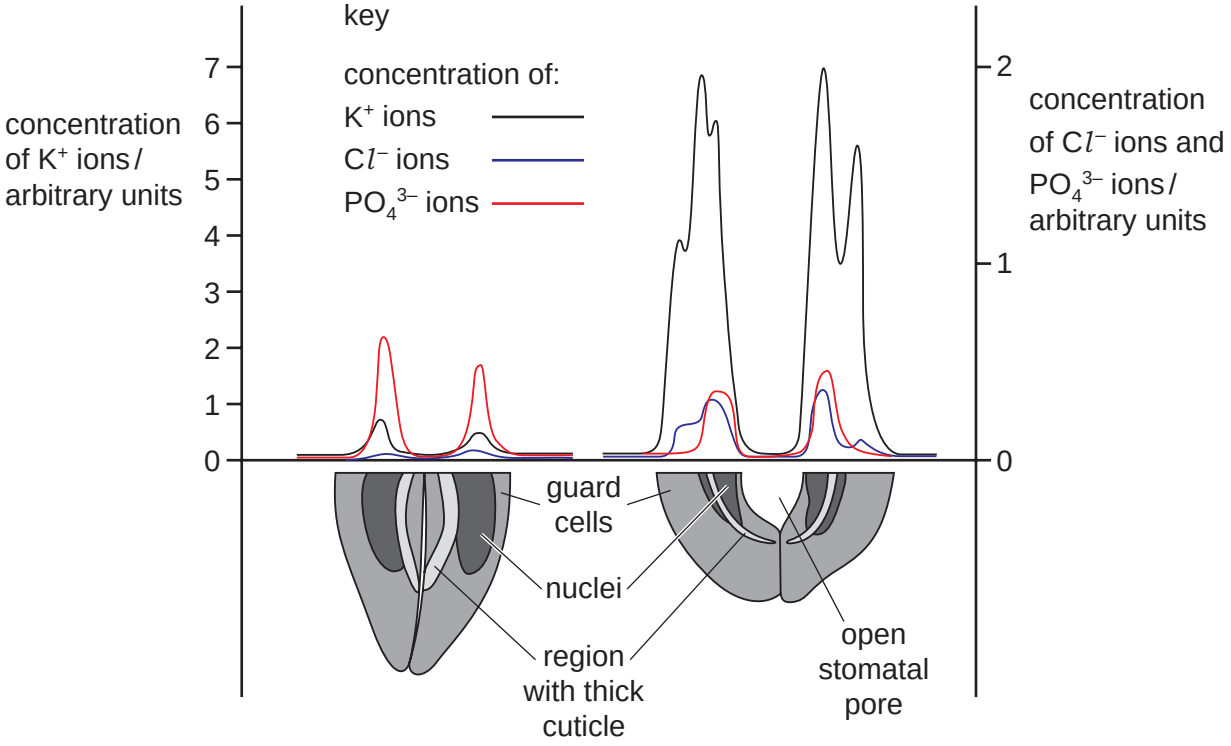


**Fig. 23.3**

**(b)** Suggest a possible mechanism, that can be supported by the data in Fig. 23.3, to account for the changes in stomatal aperture.

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**(c)** Many plant cells have cytoplasmic connections (plasmodesmata) between neighbouring cells, but these are absent from guard cells.

Explain how this helps guard cells function efficiently.

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**[Total: 10]**