

9.2 Transport in the Phloem of Plants

Question Paper

Course	DP IB Biology
Section	9. Plant Biology (HL Only)
Topic	9.2 Transport in the Phloem of Plants
Difficulty	Easy

Time allowed: 10
Score: /5
Percentage: /100

Question 1

The movement of phloem sap is an active process.

Which of the following is the most suitable explanation for this?

- A. Phloem sap flows from the source to the sink.
- B. ATP is required to load organic compounds into the phloem at the source.
- C. Water leaves the phloem sieve tube at the sink.
- D. Water moves into the phloem at the source by osmosis.

[1 mark]

Question 2

Which of the following is **not** a structural feature of phloem tissue?

- A. Lignified cell walls to withstand the hydrostatic pressure.
- B. Columns of sieve tube cells.
- C. Companion cells containing cell components that facilitate the loading and unloading of organic compounds.
- D. Sieve plates with pores allows for the continuous movement of organic compounds.

[1 mark]

Question 3

Which of the following aphid characteristics makes them suitable to use when investigating phloem transport rates?

- I. Phloem sap makes up the bulk of their diet.
- II. They have specialised mouthparts called stylets.
- III. The stylet can be easily severed during investigations.
- IV. Their mouthparts are able to pierce through plant tissue to reach the phloem.

- A. I and IV only.
- B. I, III, and IV only.
- C. II, III, and IV only.
- D. I, II, III, and IV.

[1 mark]

Question 4

The micrograph below shows part of a cross section of a plant stem.

Which of the structures **A-D** represents the xylem tissue?

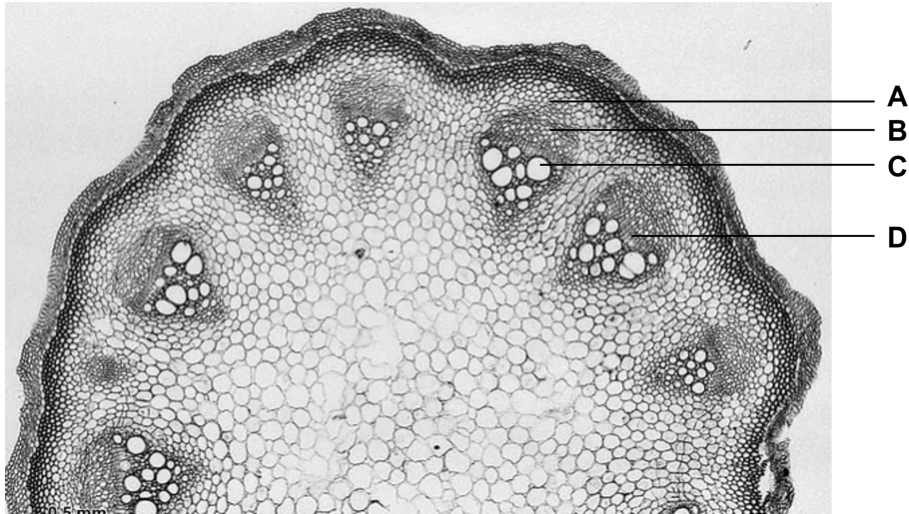


Image courtesy of Doc. RNDr. Josef Reischig, CSc. Licensed under Creative Commons Attribution-Share Alike 3.0 Unported license. Reused and distributed under conditions found at: <https://creativecommons.org/licenses/by-sa/3.0/>

[1 mark]

Question 5

Which row correctly identifies a structure and its related function in a **companion cell**?

	Structure	Function
A.	Many mitochondria present	Translation of polypeptides that will form cell surface membrane proteins
B.	Nucleus and cell organelles	Carrying out the cell processes of the sieve tube cells
C.	Plasmodesmata	Linking adjacent companion cells with each other
D.	Small amount of cytoplasm present	Facilitating the movement of assimilates

[1 mark]