

Past-paper walk-through

Translocation ■ 8.4

eXercise

Questions in this set

- 0610/21 N25 Q13 ■ 1 mark
- 0610/22 N25 Q13 ■ 1 mark
- 0610/23 N25 Q14 ■ 1 mark
- 0610/21 J25 Q14 ■ 1 mark
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Question 13

0610/21 N25 ■ Q13 ■ 1 mark

13 During the growing season, tomato plants produce flowers and fruits.

Which parts of a growing tomato plant are sources, and which parts are sinks?

	flowers	fruits	leaves
A	sink	sink	source
B	sink	source	sink
C	source	sink	source
D	source	source	sink

Solution 13

Answer: **A**

Why

- A source releases sucrose into the phloem; a sink takes it out.
- The leaves are photosynthesising, so they are the source.
- The flowers and fruits are growing and storing, so they are sinks.

Question 13

0610/22 N25 ■ Q13 ■ 1 mark

13 What is translocation?

- A** the movement of amino acids and water from sink to source
- B** the movement of starch and water from source to sink
- C** the movement of sucrose and amino acids from source to sink
- D** the movement of sucrose and mineral ions from sink to source

Solution 13

Answer: **C**

Why

- Translocation is the transport of dissolved food in the phloem.
- The substances carried are sucrose and amino acids.
- It runs from source to sink, and starch is insoluble so it is never transported.

Question 14

0610/23 N25 ■ Q14 ■ 1 mark

14 Which statements describe sources and sinks?

- 1 Palisade mesophyll cells only act as sinks.
- 2 Roots can act as sinks.
- 3 Sink cells only receive glucose from the phloem.
- 4 Spongy mesophyll cells can act as sources.

A 1, 2, 3 and 4

Question 14

- B** 1, 3 and 4 only
- C** 1 and 3 only
- D** 2 and 4 only

Solution 14

Answer: **D**

Why

- Roots store food, so they act as sinks – statement 2 is right.
- Palisade mesophyll cells photosynthesise, so they are sources, not only sinks.
- Phloem carries *sucrose*, not glucose, so statement 3 is wrong too.

Question 14

0610/21 J25 ■ Q14 ■ 1 mark

- 14** In some countries, spring is the time of year when daffodil plants have green leaves and produce flowers.

Which parts of the daffodil plants act as sources and sinks in spring?

	flowers	leaves
A	sink	sink
B	source	source
C	sink	source
D	source	sink

Solution 14

Answer: **C**

Why

- A source releases sucrose into the phloem; a sink takes it out and uses or stores it.
- In spring the underground bulb is releasing its stored food, so it is the source.
- The growing leaves and flowers are using that food, so they are the sinks.

Question 14

0610/23 J25 ■ Q14 ■ 1 mark

14 Which structures in humans and in plants normally carry amino acids?

	arteries	phloem
A	yes	yes
B	yes	no
C	no	yes
D	no	no

Solution 14

Answer: **A**

Why

- Amino acids are absorbed into the blood, so arteries carry them round the body.
- In a plant, amino acids are carried in the phloem along with sucrose.
- Xylem carries only water and mineral ions, so it is not involved.