

(Transport in plants (transpiration, translocation, potometer practical))

Q1.a)(2018)

(mouthpiece) has pierced /
entered the phloem
or
(the aphid) has been feeding
from the phloem

Q1.b)(2018)

yellow leaves due to lack of
chlorophyll

(therefore) less / no light
absorbed (by chlorophyll)

(therefore) lower rate of / no
photosynthesis

(therefore) plant makes less / no
sugar / glucose

(therefore) plant converts less /
no sugar / glucose into protein
(for growth, so growth is
stunted)

Q1.c)(2018)

inject the protein / it into a
mouse

combine lymphocytes with
tumour / cancer cells to make
hybridoma (cells)

find a hybridoma which makes a
monoclonal antibody specific to
PVY

(the scientist) clones (the
hybridoma) to produce many
cells (to make the antibody)

Q2.a)(2019)

Organisation

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any **one** from:

- plant **A** has more stomata
- plant **A** has more leaves
- plant **A** has bigger leaves
- plant **A** has a greater total surface area of leaves

Q2.b)(2019)

5.2

$$(5.2 \times 2 =) 10.4$$

or

$$\left(\frac{5.2}{0.5} =\right) 10.4$$

10 (cm³/hour)

Q2.c)(2019)

(rate increased because)

any **two** from:

- (it was) warmer
 - light intensity was higher
 - (it was) less humid
-
- (it was) windier

Q3.a)(2021)

Organisation

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(correct division)

$40 \div 7$ (in hours)

or

$40 \div 420$ (in minutes)

5.71 (in hours)

or

0.0952...(in minutes)

(correct conversion to minutes)

0.0952...

(answer in standard form)

$9.5(238) \times 10^{-2}$

Q3.b)(2021)

(less water loss at night)

stomata are (almost completely)
closed

(because) it's cooler / colder

or

(because) there's less / no light

Q4.(2022)

any **two** from:

- transpiration (stream)
involves xylem **and**
translocation involves
phloem
- transpiration (stream)
transports water (and
minerals / ions) **and**
translocation transports
(dissolved) sugars
- transpiration (stream)
moves substances upwards
and translocation moves
substances upwards and
downwards

Q5.(2022)

warm with low humidity

Q6.a)(2022)

Organisation

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stomata (almost) closed at
(mid)night because there is no /
less light for photosynthesis

(closing stomata) reduces /
prevents water loss

stomata open wide(st) at midday
as maximum light intensity for
photosynthesis

(stomata open wide) to take in
most / more carbon dioxide for
photosynthesis

Q6.b)(2022)

stomata are open wider **and** for
more time

(so allows plant) to take in more
carbon dioxide for
photosynthesis

Q7.(2024)

translocation