

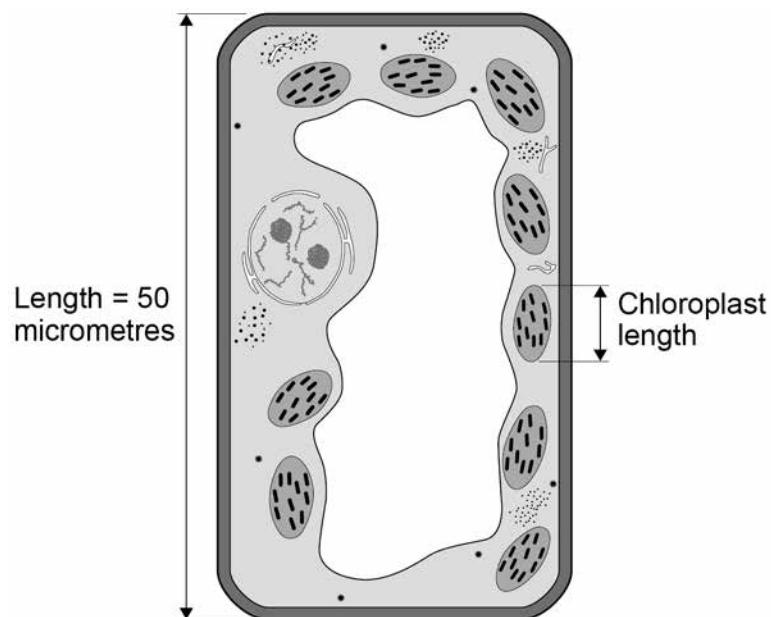
0 2

Plants are made up of cells, tissues and organs.

0 2 . 1

Draw **one** line from each level of organisation to the correct plant part.**[2 marks]**

Level of organisation	Plant part
	Leaf
Organ	Root hair
	Spongy mesophyll
Tissue	Vacuole
	Xylem cell

Figure 3 shows a plant cell drawn to scale.**Figure 3**

0 2 . 2 Where in a plant would the cell in **Figure 3** be found?

[1 mark]

Tick **one** box.

Epidermis

Palisade mesophyll

Phloem

Xylem

0 2 . 3 Calculate the length of the chloroplast labelled in **Figure 3**.

[2 marks]

Length = _____ micrometres

0 2 . 4 Cells in plant roots do **not** photosynthesise.

Give **one** reason why.

[1 mark]

Turn over ►



0 2 . 5 As a plant grows, new root hair cells are formed from un specialised cells.

How does an un specialised cell become a new root hair cell?

[1 mark]

Tick **one** box.

Differentiation

Metabolism

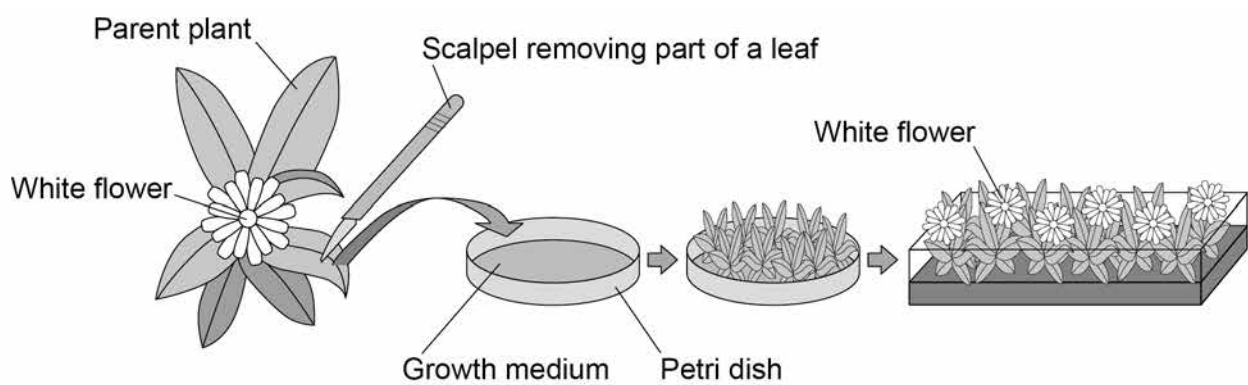
Transpiration

Transport

Scientists can clone plants using tissue culture.

Figure 4 shows the process of tissue culture.

Figure 4



0 2 . 6 Why might scientists want to clone plants?

[1 mark]

Tick **one** box.

To create new species of plants.

To introduce variation into plants.

To protect endangered plants from extinction.

To reduce disease resistance in plants.

0 2 . 7 What is the advantage of cloning plants using tissue culture?

[1 mark]

Tick **one** box.

No special equipment is needed.

Plants can be produced quickly.

The flowers are all different colours.

The offspring are all genetically different.

0 2 . 8 The growth medium in **Figure 4** helps the plants to grow.

Name **one** substance in the growth medium.

[1 mark]



Question	Answers	Extra information	Mark	AO / Spec. Ref.
02.1		additional line from a level of organisation negates the mark for that level of organisation	2	AO1 4.2.1 4.2.3.1
02.2	palisade mesophyll		1	AO2 4.2.3.1
02.3	$\frac{50}{8}$ 6 / 6.25 / 6.3 (micrometres)	an answer of 6 / 6.25 / 6.3 scores 2 marks	1 1	AO2 4.1.1.2
02.4	they have no chloroplasts / chlorophyll	allow they are underground allow they don't get (access to) light allow (because) photosynthesis needs light allow they can't absorb light ignore 'sun' ignore 'it is dark'	1	AO2 4.1.1.3 4.4.1.1
02.5	differentiation		1	AO1 4.1.1.4 4.1.2.3
02.6	to protect endangered plants from extinction		1	AO1 4.1.2.3

Question	Answers	Extra information	Mark	AO / Spec. Ref.
02.7	plants can be produced quickly		1	AO1 4.1.2.3
02.8	any one from: <ul style="list-style-type: none"> • glucose / sugars / starch • amino acids / protein • hormones • ions / minerals • vitamins • water 	allow named hormones eg auxin allow magnesium / nitrate allow named vitamins e.g. vitamin B allow H ₂ O / H ₂ O ignore oxygen / carbon dioxide / agar / nutrients / fertiliser	1	AO2 4.1.2.3
Total			10	