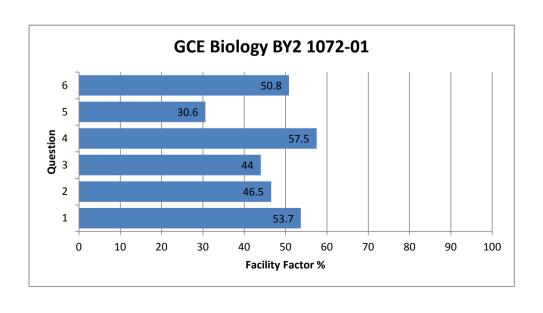


WJEC 2014 Online Exam Review

GCE Biology BY2 1072-01

All Candidates' performance across questions

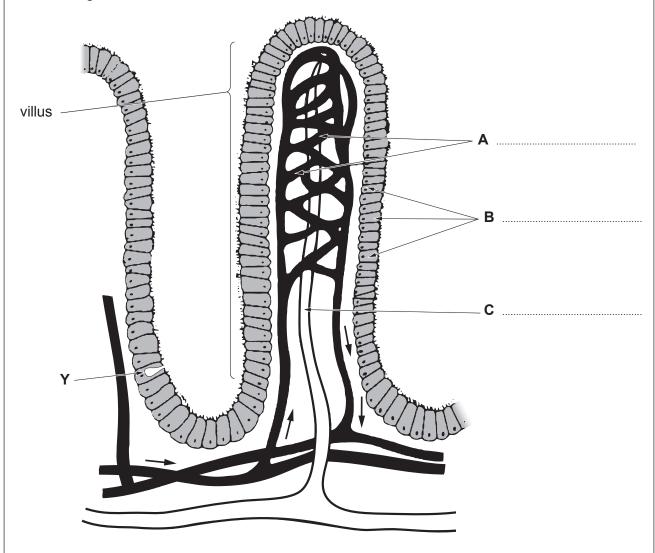
?	?	?	?	?	?	?
Question Title	N	Mean	S D	Max Mark	F F	Attempt %
1	4904	8.1	3.7	15	53.7	99.9
2	4904	6	2.7	13	46.5	99.9
3	4906	4.4	1.7	10	44	100
4	4902	7.5	2.6	13	57.5	99.9
5	4882	2.7	2.1	9	30.6	99.5
6	4864	5.1	3.2	10	50.8	99.1



[3]

Answer all questions.

1. The diagram below shows a villus of the small intestine.



(b)	With reference to the diagram only in the functioning of the villus.	, describe and explain two features that are important [4]

Complete the diagram above by naming the structures **A**, **B** and **C**.

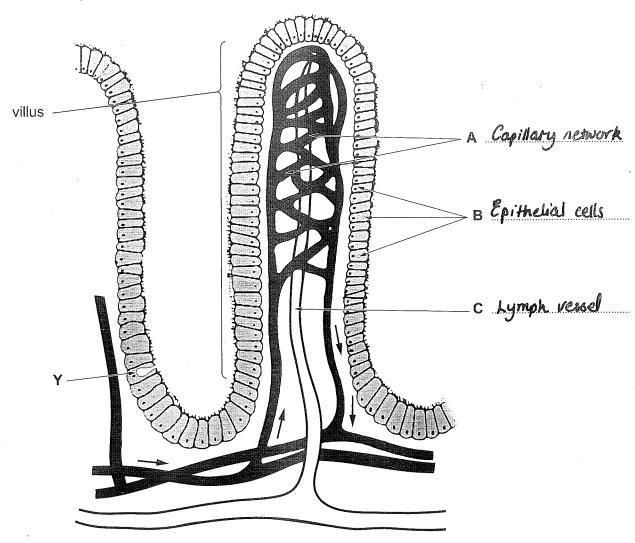


(c)	(i)	Name the substance secreted by cell type Y.	[1]
	(ii)	Explain two functions of the secretion of cell type Y in the process of digestion	. [2]
(d)		ers of smooth muscle are found in the wall of the small intestine. lain the role of these muscle layers in the process of digestion.	[3]
(e)		no acids absorbed by structure A are transported to the liver. Describe the fate of ess amino acids absorbed.	f the [2]



Answer all questions.

1. The diagram below shows a villus of the small intestine.



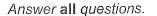
- (a) Complete the diagram above by naming the structures A, B and C.
- [3
- (b) With reference to the diagram **only**, describe and explain **two** features that are important in the functioning of the villus. [4]

It is important to have a good capillary network with an efficient blood supply to maintain a concentration gradient for diffusion. The epithelial cells are needed for protection of the villus, and can secrete digestive juices and absorb soluble products of digestion.

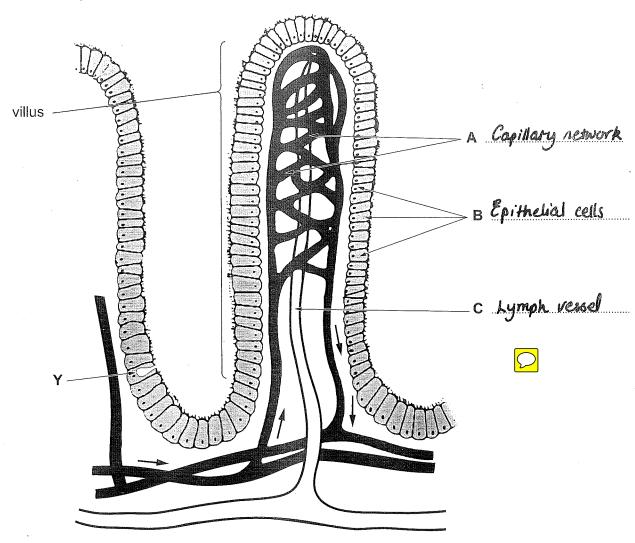


(c)	(i) Name the substance secreted by cell type ¥. [1
	Mucus
	(ii) Explain two functions of the secretion of cell type Y in the process of digestion. [2]
مم	Cell Y is a goblet cell which secretes mucus to
	Subricate food makeules as they pass through the small
	intestine, and also this mucus contains digestive
(d)	Layers of smooth muscle are found in the wall of the small intestine.
	Explain the role of these muscle layers in the process of digestion. [3]
	ere are two kinds of muscle here. Circular muscle
CON	tracks, proteings and longitudinal muscle relaxes.
Th	ese actions push the food along the gut during peristalsy
Cii	cular muscle contracts behind the food molecules, and
lon	gitudinal muscle relaxes in front of it, pushing it
d	ong.
(e)	Amino acids absorbed by structure A are transported to the liver. Describe the fate of the excess amino acids absorbed. [2]
•	They are either released as the waste product wea,
	the second of th
	mey are converted to earbohydrates for storage





1. The diagram below shows a villus of the small intestine.



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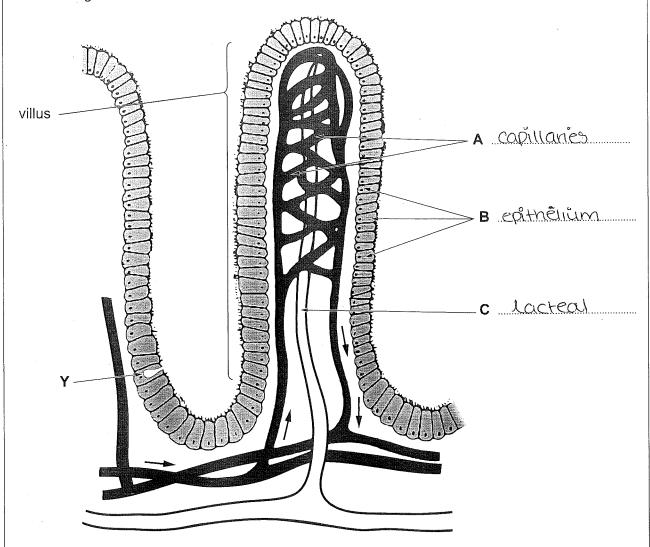
	(i) Name the substance secreted by cell type Y. [1]
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71	sand and how binds of muscle have Circular muscle
	ere are two kinds of muscle here. Circular muscle
con	track, proteings and longitudinal muscle relaxes.
con The	tracts, prateings and longitudinal muscle relaxes. ese actions push me food along the gut during peristalsies
con The Cin	tracts, pratrings and longitudural muscle relaxes. ese actions push the food along the gut during peristalsys cular muscle contracts behind the food molecules, and
con The Cin	tracts, prateings and longitudinal muscle relaxes. ese actions push me food along the gut during peristalsies
con The Circ kong	tracts, pratrings and longitudural muscle relaxes. ese actions push the food along the gut during peristalsys cular muscle contracts behind the food motecules, and
Con The Cin kong cll (e)	tracts, prateings and longitudinal muscle relaxes. ese actions push the food along the gut during peristalsystember muscle contracts behind the food molecules, and gitudinal muscle relaxes in front of it, pushing it
Con The Cin kong cll (e)	tracks, prateings and longitudinal muscle relates. ese actions push the food along the gut during peristalsystemates muscle contracts behind the food molecules, and gitudinal muscle relates in front of it, pushing it long. Amino acids absorbed by structure A are transported to the liver. Describe the fate of the excess amino acids absorbed.
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Answer all questions.

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- [3]
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Microvillios to increase surface area for absorbtion

about apply (vast network of capillaries)

to maintain concentration gradient.

Good blood supply allows allows for oxygen

Supply for aerobic respiration in minochandina

to produce ATP

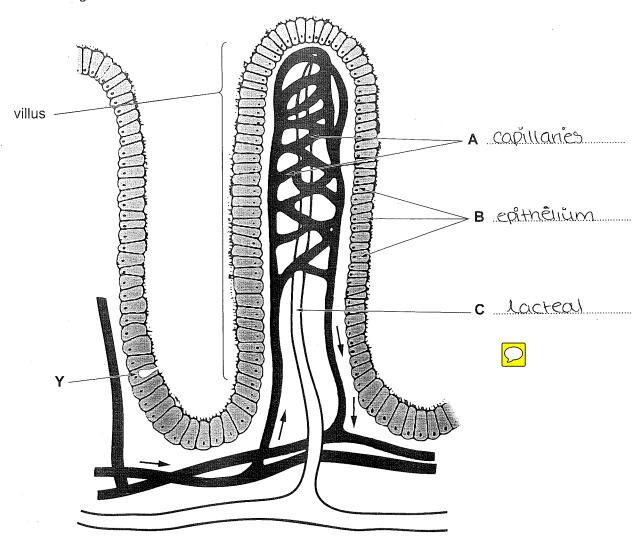


(c)	(i) Name the substance secreted by cell type Y.	[1]
	Gobiet cell.	
	(ii) Explain two functions of the secretion of cell type ¥ in the process of digestion.	. [2]
*	Goblet ceus produce mucus Mucus	
	reduces prichen benneen Edusaved	
	food substances in blood and	
	vill.	
(d)	Layers of smooth muscle are found in the wall of the small intestine. Explain the role of these muscle layers in the process of digestion.	[3]
M	ASCIES COMMOCH -> Peristalsis produces mucus	
lvv	ur most layer is mucosa which reduces theret	<u> </u>
fr	étion friction. Next layer up is sub mucosa unici	ے
CON	Hours lymph and tronsports products of digestion	١
\VŠ	to blood. Muscles are composed of fibrals collage	<u>e</u> a.
W.	ich contract and push food along	
(e)	Amino acids absorbed by structure A are transported to the liver. Describe the fate of excess amino acids absorbed.	the [2]
So	me of the excess amiño acids one deaminat	ed
an	d converted into urea and passed out in	
tv	e unne. The rest is converted into	
CG	vibonydrates and stored.	
	· · · · · · · · · · · · · · · · · · ·	



Answer all questions.

I. The diagram below shows a villus of the small intestine.



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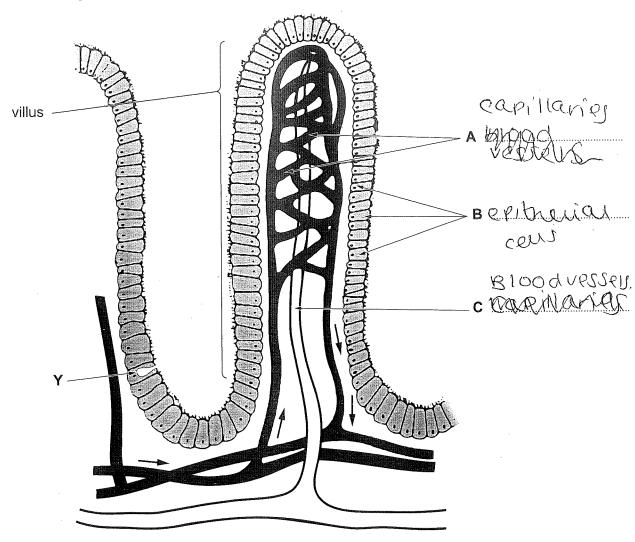
(c)	(i) Name the substance secreted by cell type Y.	[1]
	Goralet cell	
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مع	Goblet œus produce mucus Mucus)
	reduces pricher benneen fausaired	
	food substances in a broad and	
	vill.	
(d)	Layers of smooth muscle are found in the wall of the small intestine. Explain the role of these muscle layers in the process of digestion.	[3]
M	USCIES CONTRACT > Peristalsis Produces mucus + Need	
.lv.v	rix most layer is mucosa which reduces therefore	xe
. f c	rétrovi friction. Next layer up is sub mucosa unich	·····
	ntains lymph and tronsports products of digestion	
<u></u>	re blood. Muscles are composed of fibrous could ge	.C.
W.	ich contract and push food along	
(e)	Amino acids absorbed by structure A are transported to the liver. Describe the fate of the excess amino acids absorbed.	
Sc	me of the excess amiño acids one deaminate	[2] [d
	a converted into urea and passed out in	1
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-villy has large surface area for absorption of nutrients.

-Contains mito chandria in

order to produce ATP & to

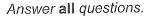
Provide energy for protein

Syntheris:

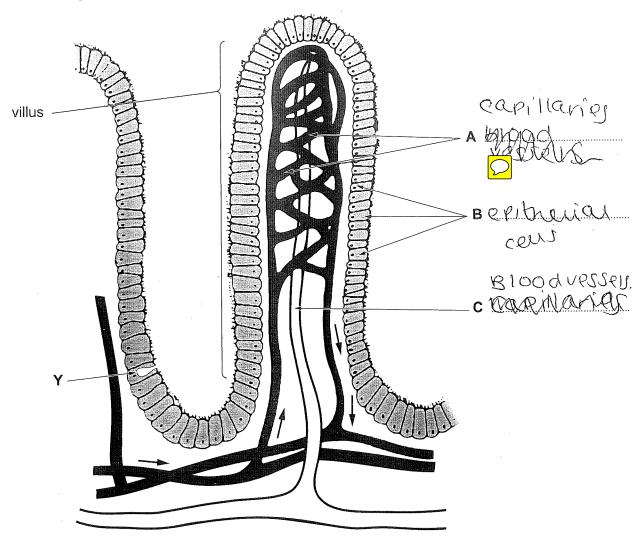


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	É MUCUS	
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20	lyers of elasticand collagen are	
	sent which heirs the muscle	
	ntractions. ruscie contractions	
α	Te known as peristansis which	
he	ips to push the food down during	
	gestion.	
	Amino acids absorbed by structure A are transported to the liver. Describe the fate of the excess amino acids absorbed.	ne 2]
A	mino acids are broken down	
	a ove transported via the	
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	ich as urine and urea.	





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-villes has large Surface area por absorption of nutrients.
-Contains mito chandria in order to produce ATP & to Provide energy for protein synthesis.



(c)	(i) Name the substance secreted by cell type ¥. [1	1]
	Q MUCUS D	
	(ii) Explain two functions of the secretion of cell type Y in the process of digestion. [2	2]
*	Mucas heirs to subvicate	
	Rod and it ausopreduces	
	friction during digestion bewen	- 1
	tre Cell Wells	
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LC	lyers of elasticand collagen are	
RCR	sent which heirs the muscle	
Co	ntractions, muscle coptractions	
	re known as peristalsis which	
ho	2 ps to push the food down during	
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	nd our transported via De	- 1
	epatic popal vein. This causes	
	earning of waste products	
	uch as urine and ur-ea.	- 1

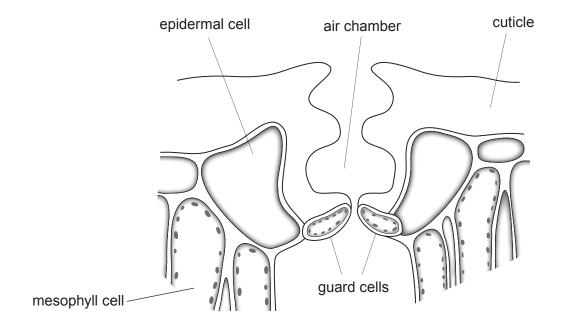




2.	(a)	(i)	State what is meant by the term <i>transpiration</i> . [2]
		(ii)	Give one benefit of transpiration to a plant. [1]
	(b)	The mea	diagram below shows a piece of apparatus called a potometer which is used to sure the rate of transpiration.
			water reservoir waterproof seal
			air bubble
		(i)	Suggest why the end of the shoot should be cut under water before being inserted into the potometer. [2]
		(ii)	State what measurements would have to be made, in order to determine the rate of transpiration. [2]



The diagram below shows a sunken stoma which is an adaptation found in the leaves of some plants that live in very dry conditions. (c)



		[1]
(ii)	With reference to the diagram, explain how a sunken stoma is able to rectranspiration.	duce [3]
(iii)	Describe and explain two other adaptations which reduce the rate of transpiral in plants that live in very dry conditions.	ation [2]

State the general name for plants that live in, and are adapted for, dry conditions.

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(1072-01)

Turn over.

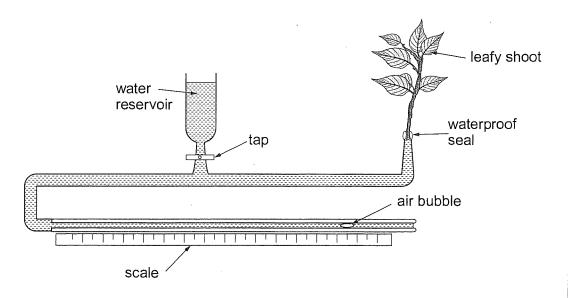
2. (a) (i) State what is meant by the term transpiration.

Transpiration is the evaporation of water from the surface of leaves, causing a pull of water up the reference alled a transpiration stream.

(ii) Give one benefit of transpiration to a plant.

If ensures that the plant is constantly supplied with water.

(b) The diagram below shows a piece of apparatus called a potometer which is used to measure the rate of transpiration.



(i) Suggest why the end of the shoot should be cut under water before being inserted into the potometer. [2]

To prevent unwanted air bubbles entering, as there is only one air bubble that should be measured. used.

(ii) State what measurements would have to be made, in order to determine the rate of transpiration. [2]

The distance travelled by the air bubble, per unit

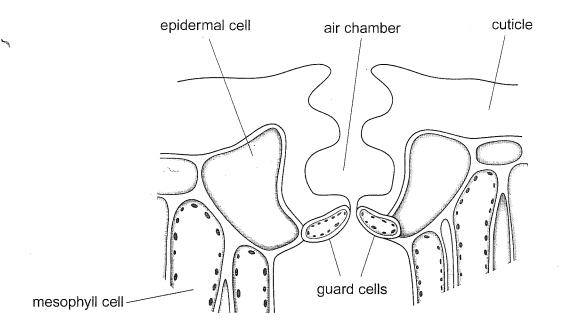
a measurement. 99% of water taken up is lost by

transpiration, so this can give an approximate rate of

transpiration.



(c) The diagram below shows a sunken stoma which is an adaptation found in the leaves of some plants that live in very dry conditions.



(i) State the general name for plants that live in, and are adapted for, dry conditions.

[1]

1072

Xerophytes

(ii) With reference to the diagram, explain how a sunken stoma is able to reduce transpiration. [3]

......

This means that a layer of water vapour can concentration form over the stemata. This reduces the water is

lost to the surroundings by evaporation.

(iii) Describe and explain **two** other adaptations which reduce the rate of transpiration in plants that live in very dry conditions. [2]

They have a thick cuticle to reduce water loss.

They have hairs, which trap water vapour,

reducing the water potential gradient, therefore

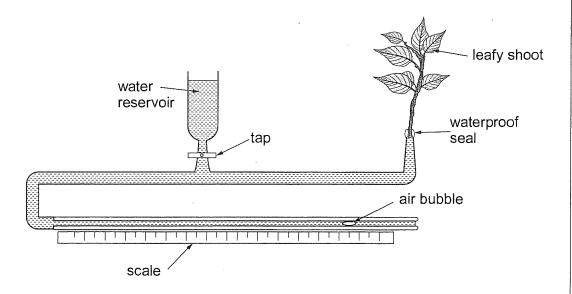
reducing water loss.

13



2.	<u>(</u> a)	(i) State what is meant by the term <i>transpiration</i> .	[2]
		Transpiration is the evaporation of water from the	
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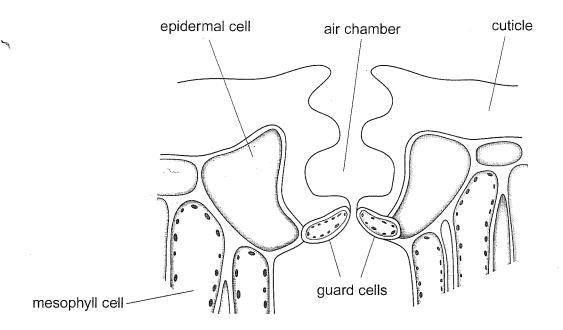
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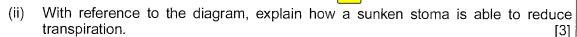


(i) State the general name for plants that live in, and are adapted for, dry conditions.

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1072

Xerophytes



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13

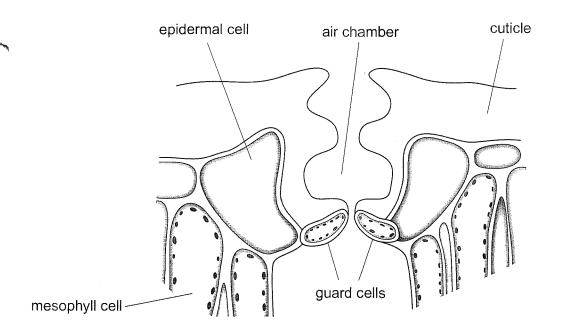


4 Examiner 2. (i) State what is meant by the term transpiration. (a) [2] Process of water Macrosage loss from leaf (stem) Water llares surface of leaf through stomata Give one benefit of transpiration to a plant. [1] Meons that plant cells do not become constaty many ... reactions are ceres recreve water + minerals. The diagram below shows a piece of apparatus called a potometer which is used to measure the rate of transpiration. leafy shoot water reservoir waterproof seal tap air bubble scale Suggest why the end of the shoot should be cut under water before being inserted into the potometer. To ensure that no air (bubbles) get into potometer because there is no air under water This will ensure results obtained are a close State what measurements would have to be made, in order to determine the rate of transpiration. Measure distance air bubble travels Der unit time. Mse measur

only



(c) The diagram below shows a sunken stoma which is an adaptation found in the leaves of some plants that live in very dry conditions.



State the general name for plants that live in, and are adapted for, dry conditions.

Xerophytes

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With reference to the diagram, explain how a sunken stoma is able to reduce (ii) transpiration.

.....

Humid air gets tropped in air chamber just water outside stomata. As a result,

less water is lost, because gradient less steep

ED OND W SIMILOY INSIDE OND CULT.

Describe and explain two other adaptations which reduce the rate of transpiration in plants that live in very dry conditions.

Thick est (waxy) curcle prevents water loss.

Hair trops water which reduces concentration therefore

gradient by redu

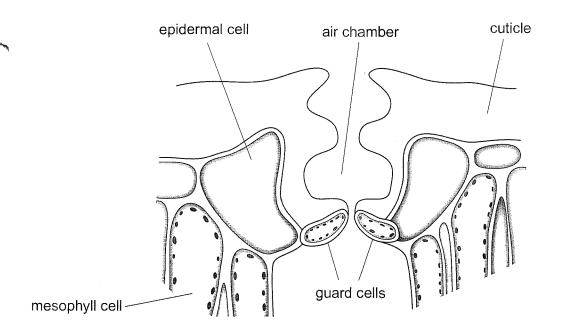
tation and as much water as possible



·	(i) State what is meant by the ter
ing loss from leaf (sien	Process of water Me
a lat through	Water llaves surfa
<u> </u>	stomata
a plant.	(ii) Give one benefit of transpiration
us do not become	Meons that plant
burst, also means that wa are cells repeated water t miner paratus called a potometer which is used	Constantly maring constantly constantly maring constantly maring constantly maring constantly
leafy shoot waterproof seal	water reservoir
	200
	scale [*]
nould be cut under water before being insert	(i) Suggest why the end of the sh into the potometer.
sir (bubbles) get into	To ensure that no
erepis no air under wa	
obtained are a close	
ve to be made, in order to determine the rate	
	Measure distance



(c) The diagram below shows a sunken stoma which is an adaptation found in the leaves of some plants that live in very dry conditions.



(i) State the general name for plants that live in, and are adapted for, dry conditions.

[11]

Xerophytes D

(ii) With reference to the diagram, explain how a sunken stoma is able to reduce transpiration. [3]

Humid air gets tropped in air chomber just

outside stornata. This reduces the concentration between of and unside gradient of water, outside stornata. As a result,

less water & lost, because gradient less

Steep and W Similar inside and cut.

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[2]

Thiốn est (naxy) curáe prevents mater loss.

Hair trops water union reduces concentration

gradient lis reduces nater loss. Extensite

root system tother is as much water as possible

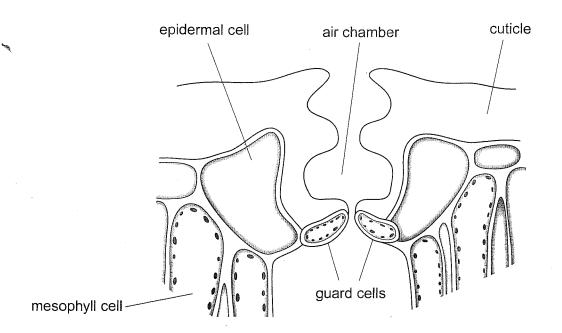




only



(c) The diagram below shows a <u>sunken stoma</u> which is an <u>adaptation</u> found in the leaves of some plants that live in very dry conditions.



(i) State the general name for plants that live in, and are adapted for, dry conditions.

[1]

presorbytes xerophytes

(ii) With reference to the diagram, explain how a <u>sunken stoma</u> is able to reduce transpiration. [3]

Sunken Stoma reduces transpiration be could it has a large surface! volume

rosophytteers which arrows the

(iii) Describe and explain **two** other adaptations which reduce the rate of transpiration in plants that live in very dry conditions. [2]

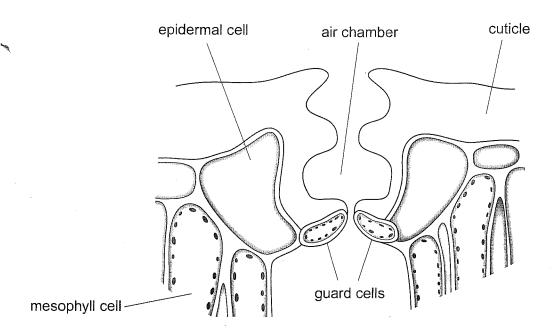
They have curred leaves to trapmater in and also have a thick cuticil



only



(c) The diagram below shows a <u>sunken stoma</u> which is an <u>adaptation</u> found in the leaves of some plants that live in very dry conditions.



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www.ptrn xeropoytes

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mosophytreets up is in amous the

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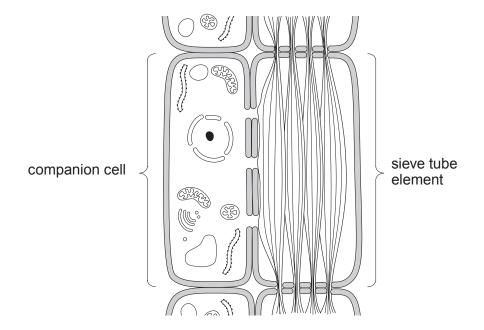
They have curred reaves to trapmater in and also have denick cuticil

reduce water 1055





5. The diagram below shows two types of cell that are found in phloem tissue.



(a)	Name two other types of cell that are found in phloem.	[2]
	1	
	2	
(b)	The function of phloom is to transport execute molecules, such as sucress in a plant	
(b)	The function of phloem is to transport organic molecules, such as sucrose, in a plant.	•
	Using the diagram <u>only</u> , explain how two features of the sieve tube element enable phloem to carry out its function.	the [4]
		· · · · · · ·
•••••		· · · · · · · ·



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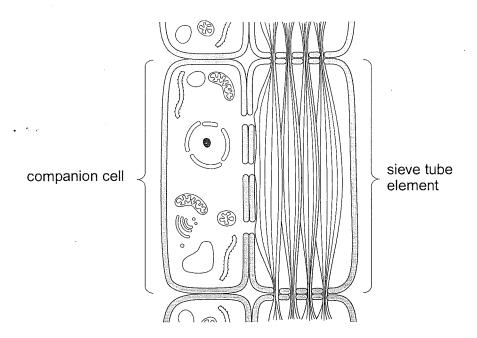
(1072-01)

(c)	The mass flow theory is one explanation to account for the movement of solutes in the phloem.	
	Suggest why the presence of large numbers of mitochondria in the companion cells does not support this theory. [3]	
		9



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5. The diagram below shows two types of cell that are found in phloem tissue.



(a) Name **two** other types of cell that are found in phloem.

[2]

- 1 Sieve plates
- 2 ALSWAND ROLL ROOF CELLS
- (b) The function of phloem is to transport organic molecules, such as sucrose, in a plant.

Using the diagram <u>only</u>, explain how **two** features of the sieve tube element enable the phloem to carry out its function. [4]

It is perforated with pores, to allow the passage of organic motecutes. It shares plasmodes mata with a companion cell, so can obtain energy in the form ATP from the respiring companion cell, which has cell organelles including mitochondina.



(c) The mass flow theory is one explanation to account for the movement of solutes in the phloem.

Suggest why the presence of large numbers of mitochondria in the companion cells does **not** support this theory. [3]

'Mass flow' is described as passive, not envolving

energy. Minchondria is are the site of respiration in

a cell, providing energy in the form ATP. If mass

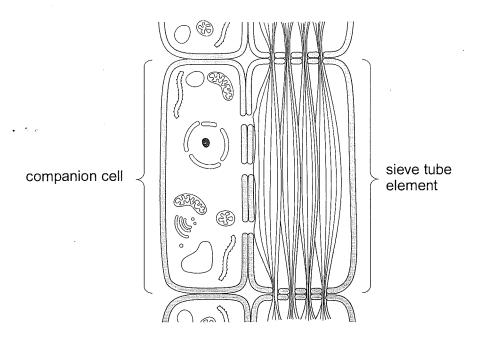
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5. The diagram below shows two types of cell that are found in phloem tissue.



(a) Name **two** other types of cell that are found in phloem.

[2]

- 1 Sieve plates
- 2 Bleggise red Loot cells



(b) The function of phloem is to transport organic molecules, such as sucrose, in a plant.

Using the diagram <u>only</u>, explain how **two** features of the sieve tube element enable the phloem to carry out its function. [4]

It is perforated with pores, to allow the passage of organic molecutes. It shares plasmodes that with a companion cell, so can obtain energy in the form ATP from the respiring companion cell, which has cell organelles including mitochondina.



(c) The mass flow theory is one explanation to account for the movement of solutes in the phloem.

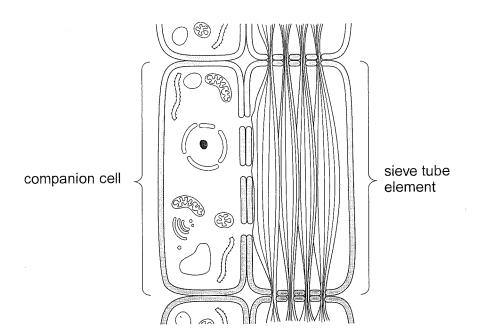
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[2]

- axiores libres
- phloem parenchyma.

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The function of phloem is to transport organic molecules, such as sucrose, in a plant. (b)

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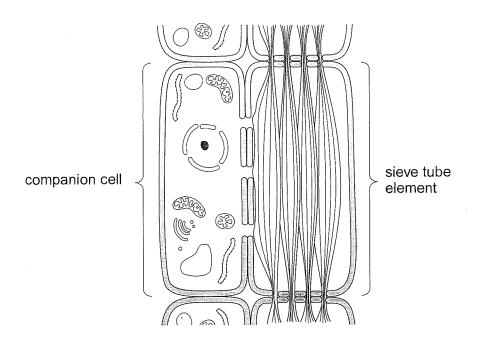
Stèle fibre Element was stèle plates (which have pares) end an either end amount tronsport of organic malames in both direction. Companión cell contenios lots of mitochondra much produce ATP, this ATP mor down the concentration gradient through a parhally permeable membrane to the sière tube element unex it is used siève tuble element lined with lightn for support.



The mass flow theory is one explanation to account for the movement of solutes in the (c) phloem. Suggest why the presence of large numbers of mitochondria in the companion cells does not support this theory. Mass from theory suggests sucross (and other products of photosynthesis) more from area of high concentration (source) to orea of law concentration (sinia). This is not an active process the therefore does not require ATP. Mitochandria however, produce ATP as a result of aerobic respiration therefore ATP be required at some point. This opposes plan theory. Alaska (The fact protosynthesis also

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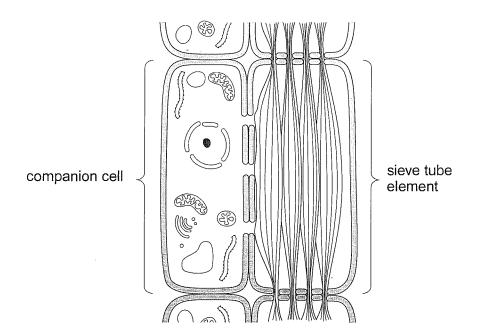
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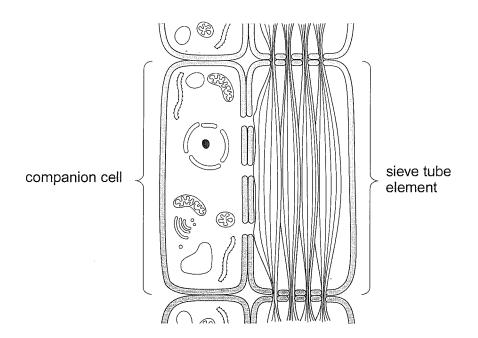
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