

2 (a) evaporation; stomata/stoma	(A)	[2]	FB216
(b) (i) increases/quicker; increases/quicker; increases/quicker; decreases/slower;		[4]	
(ii) potometer bubble potometer/weight potometer		[1]	
(c) photosynthesis/support/turgor/transport		[1]	
			8

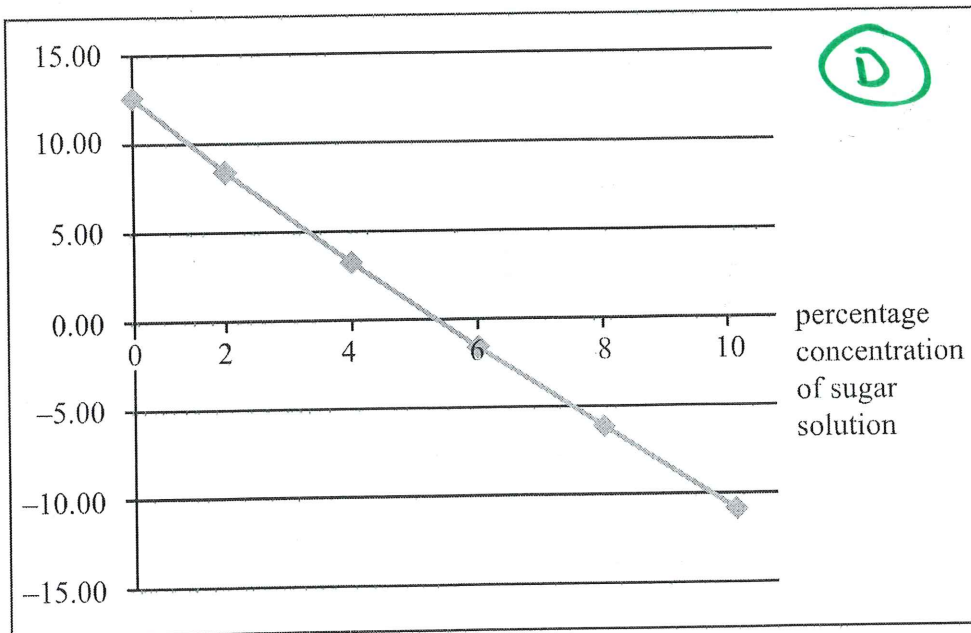
HW B

5 (a) Plasmolysed;	(B)	[1]	5
(b) Scale (same size); Membrane against cell wall <u>and labelled</u> ; Cell wall <u>correctly labelled</u> ; Vacuole drawn larger;		[4]	
			B2F14

(C+D) B2F13

5 (a) (i) Change in mass = -0.7; Percentage change in mass = $(-0.7/6.7) \times 100 = -10.44\%$ ;	(C)	[3]	AVAILABLE MARKS
(ii) <b>Initial/starting</b> masses were different/easier to compare;		[1]	
(b) (i) Plotted correctly (5 or 6 points = [2]; 3 or 4 = [1]); Line drawn;		[3]	

percentage change in mass



(ii) Concentration of sugar solution from graph = 5.4% – **from their graph**;

Explanation: no change in mass/concentration of sugar solution inside the carrot = same as concentration of sugar solution outside/  
no movement of water/no osmosis; [2]



6 (a) To prevent evaporation of water from the flask/beaker/from surface of water

(b) **Indicative content**

- Record the mass of the apparatus containing the plant initially/at start
- Leave for a given time
- Record mass at end/change in mass/take final mass from original
- Divide change in mass by time (to work out rate)
- A named variable constant – temperature/humidity/wind speed/same type/species of plant
- Repeat with reduced surface area/remove leaves/less leaves/smaller/larger leaves
- Keep **another** variable constant – temperature/humidity/wind speed/same type/species of plant
- Repeat for reliability, repeat to get average

Response	Mark
Candidates must use appropriate specialist terms throughout to describe how they would use this apparatus and explain in logical sequence, how to compare the rate of water uptake for a plant with a large surface area and then a reduced surface area (using <b>five or more</b> of the above points). They use good spelling, punctuation and grammar and form and style are of a high standard.	[5]–[6]
Candidates use some appropriate specialist terms to describe how they would use this apparatus and explain in logical sequence, how to compare the rate of water uptake for a plant with a large surface area and then a reduced surface area (using <b>three or four</b> of the above points). They use satisfactory spelling, punctuation and grammar and the form and style are of a satisfactory standard.	[3]–[4]
Candidates give some explanation of how they could use this apparatus, using at least one of the above points. However they are not presented in a logical sequence. They use limited spelling, punctuation and grammar and they have made little use of specialist terms.	[1]–[2]
Response not worthy of credit.	[0]

[6]

(c) Greater water uptake/loss in mass for plant with **larger** surface area of leaves; or converse  
**More** evaporation/**more** transpiration of water/**more** stomata/**more** pores (with more leaves); or converse



[2]

(d) Line on graph = greater gradient;  
 still starts at zero;

[2]

- (e) Any **two** from
- support/turgor/stop wilting
  - transport/movement of minerals
  - transpiration
  - photosynthesis

[2]



HW GHI

B2F14

9	(a) (i)	As wind increases, the rate of transpiration increases;	(G)	[1]	AVAILABLE MARKS	
	(ii)	As the temperature increases, the rate of transpiration increases; As the humidity increases, the rate of transpiration decreases;		[2]		
	(b) (i)	To prevent water evaporation <u>from the pot/soil</u> ;	(H)	[1]		
	(ii)	$(257.6 - 185.6) / \text{or } \div 24$ [1] or 3 g per hour		[2]		
	(iii)	Less surface area/less stomata So less evaporation/diffusion of water	(I)	[2]		
	(iv)	• Photosynthesis • Support • Transport (Any two)		[2]		
						10

HW J

~~B2F14~~ FB216

12	(a)	<b>Description:</b> level raised; <b>Direction:</b> water moves; from dilute to a more concentrated solution; through a selectively permeable membrane;	(J)	[3]	AVAILABLE MARKS
	(b)	<b>vacuole</b> has shrunk; cell membrane pulled away from the cell wall		[2]	
				5	

HW K

HB2'14

(see HWB)

3	(a) (i)	8%;	(L)	[1]	AVAILABLE MARKS	
	(ii)	No net movement of water/water is neither moving into or out of potato; Concentrations inside and outside are equal/isotonic;		[1]		
	(b) (i)	Turgid cell drawn; looks more turgid than in (ii);	(M)	[1]		
	(ii)	Correct label for cell wall <b>must</b> be a double line Correct label for cell membrane; Plasmolysed cell drawn/cell membrane pulled away from wall at all or some parts;		[1] [1] [1]		
	(c)	Cell wall = limits the entry of water/stops cell from bursting/stops lysis		[1]		
						7

L&M

H15B2

(H'15B2)

R,S,T

- 6 (a) (i) Potometer [1]  
(ii) Use the syringe; [1]  
(b) (i) Air bubble drawn in correctly/right hand side of the bubble must start at 6; [1]  
(ii) 8 mm [1]  
(c) 8; [1]  
(d) (i) Fan or wind; [1]  
(ii) Bubble move less/decreases/bubble doesn't move at all; [1]

(e) **Indicative content**

Any **five** from:

- warmer/temperature higher in 4;
- windier/the fan is on in 4;
- **more** evaporation (inside the air spaces or cells in leaf);
- **more** diffusion (inside the air spaces or cells in leaf);
- **higher** rate of transpiration/more transpiration
- through the stomata
- maintain diffusion gradient

Response	Mark
Candidates must use appropriate specialist terms throughout to describe and compare the results for experiments 1 and 4 and what happens in the leaf to bring about these results (using <b>five or more</b> of the above points). They use good spelling, punctuation and grammar and form and style are of a high standard).	[5]–[6]
Candidates use some appropriate specialist terms to describe and compare the results for experiments 1 and 4 and what happens in the leaf to bring about these results (using <b>three or four</b> of the above points). They use satisfactory spelling, punctuation and grammar and the form and style are of a satisfactory standard.	[3]–[4]
Candidates give one or two points and partially describe the results in experiments 1 and 5. They use limited spelling, punctuation or grammar skills).	[1]–[2]
Response not worthy of credit.	[0]

[6]

AVAILABLE MARKS



- 10 (a) (i) transpiration [1]
- (ii) arrow from a cell to the air space (must start in a cell or edge of cell);  
through the **stoma** only (only with arrow going **out**); [2]
- (b) less surface area/no stomata;  
less water loss/less evaporation [2]
- (c) (i) 1pm–5pm/12.30–4.30/12–4 [1]
- (ii) more stomata open, greater rate of water loss (or converse) [1]
- (iii) line starting at 8 squares up;  
increasing until midday (at least) and then starts to decrease at some  
stage; [2]
- (iv) saltwort **better adapted**/have advantageous gene  
saltwort plants (survive) to **reproduce**  
pass on **genes**/pass on allele/favourable characteristics  
allow **converse** answers [3]
- 12

H B2 Jun '16