SECTION B

Answer all the questions.

21 Fig. 21.1 shows some of the apparatus used in an experiment investigating water potential in potato tuber tissue.

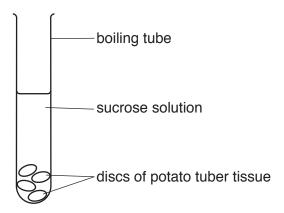


Fig. 21.1

The discs were placed in boiling tubes containing sucrose solutions of different concentrations for four hours. The percentage change of mass was then calculated.

The results are shown in Table 21.2.

Concentration of sucrose solution (mol dm ⁻³)	Change in mass of potato discs (%)
0.00	+18.00
0.10	+12.50
0.20	+ 2.50
0.30	- 3.00
0.40	- 8.00
0.45	-11.50

Table 21.2

(a) (i)	State two details of the procedure that must be followed to obtain valid results.		
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	2		
		ro	

		15	
	(ii)	Explain how a student could use the data in Table 21.2 to determine the water pote of the potato tuber tissue.	ntia
			[3]
(b)		21.3 shows a diagram of a cell from a potato tuber disc that was placed in 0.45 mole rose solution.	^{:-} mk
		w X	
		Y	
		Z	
		v—————————————————————————————————————	
		nucleus	
		Fig. 21.3	
	(i)	Identify the parts of the cell labelled X, Y and Z.	
		X	
		Υ	
		Z	
			[3]
	(ii)	What will be found at W in the immersed cell?	

.....[1]

(c) Halophytes are plants that have the ability to live in soils with a very low water potential. In the

UK these plants form part of salt marsh communities.
Suggest and explain how the root hairs of halophytes are able to absorb water by osmosis from the soil of the salt marsh.
[2]