Mark scheme

Osmosis experiments

Biology 0610 · Questions from Paper 1, Paper 2 and Paper 4

Total marks

26

MARKS FOR EACH QUESTION

1	2	3	4	5	6	7	8	9	10	Total
1	1	1	1	1	1	1	1	8	10	**26**

Question 1 [1]

Answer A

Question 2 [1]

Answer A

Question 3 [1]

Answer A

Question 4 [1]

Answer A

Question 5 [1]

Answer D

Question 6 [1]

Answer B

Question 7 [1]

Answer A

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Question 8 [1]

Answer C

Question 9 [8]

9(a)	osmosis ; solvent ;	**2**	
9(b)	*drawing with:* arrow showing water movement into cell ; *max. two from:* no space between cell membrane and cell wall ; cell wall, slightly bent outwards / straight ; vacuole larger in proportion than in Fig 1.1 ;	**3**	
9(c)	wilting ; lack of turgor pressure (at the end of the week) ; **ora** no longer a push against cell wall / AW ; **ora** (mesophyll) cells not providing support / cell collapses / AW ; (lack of water means cells become) flaccid / plasmolyse ;	**3**	

Question 10 [10]

10	**(a)**	movement / diffusion, of water (molecules) ; from high water potential to low water potential / down water potential gradient ; across a partially permeable membrane ;	[3]	
	(b) (i)	1.0 (mol dm^{-3} sodium chloride solution) ;	[1]	
	(ii)	(to remove) excess / surface / AW, water / AW, on potato sticks ; to measure the mass of the potato (stick) only ;	[max 1]	**I** inaccurate unqualified **R** dry mass
	(c)	cells / potato sticks, have lost water (by osmosis) ; from high water potential to low water potential / down water potential gradient ; (cells / tissue / potato) were, plasmolysed / flaccid ; loss of turgor (pressure) ; not enough pressure of water pushing on cell walls ;	[max 3]	**I** water concentration **I** incipient (plasmolysis) **A** reduced turgidity / description
	(d)	protein denatured (when cooked) ; cell membrane, damaged / destroyed (when cooked) ; no osmosis will occur ;	[max 2]	**R** killed proteins **I** killed / denatured, cells **I** damaged cell wall
			[Total: 10]	

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