

Multiple Choice Answers

Q5: D

Multiple Choice Answers

Q6: A

Multiple Choice Answers

Q7: A

Multiple Choice Answers

Q3: C

Q7: D

5(a)(i)	<i>any four from:</i> 1 <u>active transport</u> ; 2 (movement of particles / nitrate ions) from a low concentration to a high concentration / against OR up the concentration gradient OR there are more (nitrate) ions in the cell / root hair than the soil ; 3 pass, through / across, cell / partially permeable, membrane ; 4 using protein, carriers / molecules ; 5 using energy (from respiration) ;
5(a)(ii)	lightning and (nitrogen fixing) bacteria ;
5(b)	osmosis ;

5(c)

*total of five from:**differences to max 3:**root hair cells have:*

- 1 nucleus / nuclear membrane ;
- 2 mitochondria ;
- 3 (large permanent) vacuole ;
- 4 cellulose cell wall / cell wall made of a different substance ;
- 5 linear DNA ;
- 6 no plasmids ;
- 7 AVP ;

similarities to max 3:

- 8 cell wall ;
- 9 cell membrane ;
- 10 cytoplasm ;
- 11 DNA / genetic material ;
- 12 ribosomes ;
- 13 AVP ;

1(a)(i)	25 and 25 (cm ³) ;
1(a)(ii)	102 ±1 (mm) ;
1(a)(iii)	table drawn with a minimum of three columns and a header line ; suitable headings with correct units for concentration and length ; five correct lengths recorded that match the salt solution concentration ;
1(a)(iv)	S1 : 8 (mm) and S2 : 5 (mm) (S3 matches candidate's measurement) ;
1(a)(v)	<i>any one from:</i> the higher the concentration (of salt), the, more / faster, osmosis occurs ; the higher the concentration (of salt) the more water, is lost / moves out ; water move out of the, potato / disc(s), in salt solution(s) ; water moves into the, potato / disc(s), when there is no salt / in pure water / in 0 mol dm ³ ; the solute concentration of the potato (cell(s)) is between 0.5 mol dm ³ and 0 mol dm ³ ;
1(a)(vi)	length (of discs) ;
1(a)(vii)	<i>any one from:</i> change / difference, (in one disc) too small (to, measure / see) / ora ; one disc may not be, representative / typical ; decreases / reduces, percentage error / AW ; reduces the effect of anomalous results ;
1(a)(viii)	cut, on a tile / on a flat surface / away from hand or body / AW ;

1(b)	<i>solution:</i> iodine (solution) and <i>conclusion:</i> starch present ;
1(c)(i)	Outline is a single clear line with no shading ; Size –at least half the available space used ; Detail 1 : midrib as a double line for at least half its length ; Detail 2 : four bumps across the base of the leaf (two on either side of the petiole and two bulges at the edges) ;
1(c)(ii)	PQ = 63 ± 1 (mm) ; ($\times$) 1.6 ;;

1(c)(iii)

one difference from: ;

(potato / Fig. 1.5)		(tomato / Fig. 1.6)
more veins	OR	fewer veins
veins more branched	OR	veins less branched
(outline / side / edge is) smooth / even / not lobed	AND	(outline / side / edge is) uneven / lobed / wavy / jagged / bumpy
single / undivided / not lobed ,leaf	AND	divided leaf / leaflet / lobed (at bottom)
symmetrical	AND	not symmetrical / irregular shape

one similarity from: ;

- (both have) veins / midrib
- (both have) a (leaf) stalk / stem / petiole
- (both have) a pointed tip

Multiple Choice Answers

Q5: B