

Multiple Choice Answers

Q12: B

Q13: A

Multiple Choice Answers

Q10: D

Q11: C

Multiple Choice Answers

Q9: B

2(a)(i)	<i>any two from:</i> multicellular / AW ; producer / <i>ref. to</i> photosynthesis / (presence of) chloroplasts or chlorophyll ; cellulose cell wall ; non-motile ; reproduces asexually, and / or, sexually ; AVP ;
---------	---

2(a)(ii)	<i>any two from:</i> animal ; fungi ; protoctist ; prokaryote ;
2(b)	(vascular bundles) would be in a ring / AW ;
2(c)	root hair labelled ; xylem correctly drawn and labelled ; phloem correctly drawn and labelled ;
2(d)	<i>any two from:</i> transport / AW, of water ; transport / AW, of (mineral) ions / minerals ; support / AW ;
2(e)	<i>any five from:</i> 1 girdled trees produced a greater mass of fruit / ora ; 2 comparative data manipulation ; 3 phloem transports, <u>sucrose</u> / <u>amino acids</u> ; 4 leaves, photosynthesise / produce (named), carbohydrates / sugars ; 5 sugars / sucrose / amino acids, used for <u>growth</u> of fruit ; 6 <i>idea that</i> (in girdled tree) sucrose / sugar / amino acids, stays in the branch / cannot be transported downwards ; 7 <i>ref.</i> to translocation ; 8 leaves are the source ; 9 (growing) fruit is the sink ;
2(f)	pectinase ;

3(a)	<i>any two from:</i> (enters) the root hair (cell) ; moves through the (root) cortex (cells to the xylem) ; AVP ;
3(b)(i)	5.8 (g per hour) ;

3(b)(ii)	<i>any four from:</i> 1 as temperature increases, water loss / transpiration, increases ; ora 2 comparative data manipulation with units ; 3 higher <u>kinetic</u> energy (of water molecules) / description of molecules having more energy to, move / collide / AW ; ora 4 increases (the rate of) evaporation (inside leaf) ; ora 5 water evaporates from the surface of mesophyll cells ; 6 increases (the rate of) <u>diffusion</u> (of water vapour) through the <u>stomata</u> ; ora 7 more stomata open / stomata open wider, at high(er) temperatures ; ora
3(b)(iii)	increased rate of transpiration ; increased concentration gradient (of water vapour for diffusion through the stomata) ;
3(b)(iv)	1 (mineral) ions ; 2 tube / vessel / AW ; 3 lignin ; 4 pull ; 5 column / AW ; 6 forces (of attraction) / attraction / AW ;
3(c)(i)	<i>any three from:</i> 1 (plants / cells) exposed to, extreme heat / high temperatures ; 2 (plants / cells have) inadequate / not enough / no, water OR dehydration ; 3 (rate of) water uptake is less than, (rate of) water loss / transpiration ; ora 4 water moves out of cells (by osmosis) ; 5 cells, become flaccid / lose turgor (pressure) / plasmolyse ; 6 <i>ref. to plants / leaves / cells, rely on (turgor) pressure of water on (inelastic) cell walls for, (structural) support</i> / to stay firm / AW ; 7 AVP ;

3(c)(ii)	<i>any one from:</i> 1 inner surface of leaf is folded / AW ; 2 hairs / AW ; 3 sunken stomata or stomata in, pits / AW ; <i>any two from:</i> 4 trap moist air / water vapour / reduce air, flow / movement ; 5 reduce water (vapour) diffusion gradient (out of stomata) ; OR 6 curled / rolled / AW, leaf ; 7 (rolling) traps air / reduce air movement / shields leaf from heat / reduces exposed surface ; 8 reduce water (vapour) diffusion gradient (out of stomata) ; OR 9 few stomata ; 10 few sites where water exits the leaf / AW ; OR 11 thick (waxy) cuticle ; 12 reduces evaporation (from the leaf surface) / creates a waterproof layer ;
----------	--

2	<i>total of six from:</i> 1 <i>independent variable</i> at least two pH values , tested / stated ; 2 <i>dependent variable</i> time for iodine solution to stay yellow-brown / time for disappearance of starch/colour of iodine (solution) after a set period of time ; 3, 4 + 5 <i>variables kept constant</i> ;;; • concentration of amylase / enzyme (solution) • volume of amylase / enzyme (solution) • temperature • volume of starch (suspension) • concentration of starch (suspension) • sampling interval time, stated / described • buffer / pH (solution) volume • iodine concentration / volume / number of drops 6 & 7 <i>method</i> ;; • equilibration (both solutions in the water bath before mixing) • take samples • use of, spotting / white, tile • use of buffer 8 repeat investigation twice more / at least two replicates ; 9 relevant safety precaution ;
---	---