IGCSE Biology: **w25 21**

Multiple Choice Answers

Q12: B

Q13: A

IGCSE Biology: **w25 22**

Multiple Choice Answers

Q10: D

Q11: C

IGCSE Biology: **w25 23**

Multiple Choice Answers

Q9: B

IGCSE Biology: **w25 42**

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

2(a)(ii)	*any two from:* 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)	*any two from:* transport / AW, of water ; transport / AW, of (mineral) ions / minerals ; support / AW ;
2(e)	*any five from:* **1** girdled trees produced a greater mass of fruit / **ora** ; **2** comparative data manipulation ; **3** phloem transports, sucrose / amino acids ; **4** leaves, photosynthesise / produce (named), carbohydrates / sugars ; **5** sugars / sucrose / amino acids, used for growth of fruit ; **6** *idea that* (in girdled tree) sucrose / sugar / amino acids, stays in the branch / cannot be transported downwards ; **7** *ref*. to translocation ; **8** leaves are the source ; **9** (growing) fruit is the sink ;
2(f)	pectinase ;

3(a)	*any two from:* (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)	*any four from:* **1** as temperature increases, water loss / transpiration, increases **; ora** **2** comparative data manipulation with units **;** **3** higher kinetic 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) diffusion (of water vapour) through the stomata **; 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)	*any three from:* **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** *ref. to* plants / leaves / cells, rely on (turgor) pressure of water on (inelastic) cell walls for, (structural) support / to stay firm / AW **;** **7** **AVP** **;**

3(c)(ii)	*any one from:* **1** inner surface of leaf is folded / AW **;** **2** hairs / AW **;** **3** sunken stomata or stomata in, pits / AW **;** *any two from:* **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	*total of six from:* **1** *independent variable* at least two pH values **,** tested / stated **;** **2** *dependent variable* 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** *variables kept constant* **;;;** • 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** *method* **;;** • 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 **;**