

Multiple Choice Answers

Q26: B
Q27: C
Q28: A
Q29: C

Multiple Choice Answers

Q29: B

5(a)(i)	<i>any one from:</i> water ; mineral ions ; A any named appropriate ion AVP ; e.g. plant hormone
5(a)(ii)	lignin ;
5(b)(i)	<i>any three from:</i> as temperature increases, rate of water vapour loss from leaf increases ; A transpiration for water vapour loss <i>idea that</i> more heat energy absorbed by leaf ; more (heat) energy to evaporate water molecules / increased temperature for latent heat of vaporisation ; A more energy to break hydrogen bonds higher rate of evaporation / AVP, from, surfaces / walls, of spongy mesophyll cells ; water vapour molecules have more kinetic energy ; higher rate of diffusion of water vapour out of leaf / steeper water potential gradient ; more stomata are open at higher temperatures so more water vapour is able to diffuse out of leaf ;
5(b)(ii)	<i>any one from:</i> cotton leaves have fewer stomata (per unit area) ; <i>idea that</i> cotton leaves have a thicker (waxy) cuticle ; cotton leaves have trichomes ; A hairs for trichomes cotton leaves are curled ; A rolled / folded cotton leaves have, sunken stomata ; A other examples e.g. stomata in, grooves / crypts / chambers / pits cotton leaves have, multilayered epidermis / hypodermis / thick walled epidermis ; AVP ; e.g. suggestion that cotton leaves only have stomata on lower epidermis smaller stomatal aperture
5(c)(i)	<i>any one from:</i> more than one nucleus in each cell / more chromosomes ; larger cells ; more organelles ;
5(c)(ii)	<i>any one from:</i> nucleus will contain more chromosomes / more than 2 copies of each chromosome ; A more DNA molecules / more chromatin AVP ; e.g. <i>ref. to</i> polyploidy (proportionately) larger nuclei

1(a)	<i>letter A: example of substance</i> = carbon dioxide / oxygen ; <i>letter D: type of movement</i> = active transport ; <i>letter D: part of membrane involved</i> = carrier / pump, protein and <i>example of a substance</i> = sodium ions ; R sodium-potassium pump A potassium ions / chloride / amino acids A sodium pump (if sodium is example) A glucose <i>if not given for letter C</i> <i>letter C: example of a substance</i> = glucose ; A amino acids / chloride (ions) / potassium ions / sodium ions <i>part of membrane involved: for B</i> = channel protein and for C = carrier protein ;
1(b)	<i>any two from</i> <i>viruses travel through</i> symplast pathway ; I apoplast pathway <i>if described correctly</i> R symplast and apoplast pathways <i>if no further detail of apoplast given</i> plasmodesmata / cytoplasmic connections between cells ; A strands of cytoplasm because viruses are small enough (to pass through plasmodesmata) ; AVP ; A any <i>ref. to</i> actual size (width of plasmodesmata ~ 50 nm, width of Tobacco Mosaic Virus 18 nm)

2(a)(i)	1 2 3 4 5 uses most of the available space <u>and</u> the correct number of tissues ; draws whole stem <u>and</u> no cells ; draws the vascular tissue correctly ; draws details of the tissue layers ; label line to identify the xylem <u>and</u> the label xylem ;															
2(a)(ii)	1 2 3 4 5 drawing of a minimum size and lines continuous, thin and sharp <u>and</u> no shading ; draws only four cells and each cell touching at least one other cell ; cell wall drawn as two lines ; correct shapes of the cells ; label line to identify the waxy cuticle <u>and</u> the label waxy cuticle ;															
2(a)(iii)	(differences) 1, 2 and 3 ; ; ; Any three from : <table><tr><th>feature</th><th>J1</th><th>Fig. 2.1</th></tr><tr><td>cuticle</td><td>thicker</td><td>thinner ;</td></tr><tr><td>presence of trichomes</td><td>absent</td><td>present ;</td></tr><tr><td>size of cortex cells</td><td>smaller</td><td>larger ;</td></tr><tr><td>central tissue</td><td>larger</td><td>smaller ;</td></tr></table>	feature	J1	Fig. 2.1	cuticle	thicker	thinner ;	presence of trichomes	absent	present ;	size of cortex cells	smaller	larger ;	central tissue	larger	smaller ;
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presence of trichomes	absent	present ;														
size of cortex cells	smaller	larger ;														
central tissue	larger	smaller ;														
2(b)(i)	states number of whole vascular bundles in sector P ;															
2(b)(ii)	1 2 shows 360 divided by 15 ; correct calculation of 24 multiplied by value from Q2(b)(i) ;															
2(b)(iii)	1 2 shows value from Q2(b)(ii) divided by 44 ; correct answer given to two significant figures ;															