

Question Number	Answer	Mark
1 (a)(i)	<ol style="list-style-type: none"> <li>1. C ;</li> <li>2. mitochondria are present (and only Eukaryota possess mitochondria) ;</li> </ol>	(2)

Question Number	Answer	Mark
1 (a)(ii)	<ol style="list-style-type: none"> <li>1. B ;</li> <li>2. EITHER (because) it has { more / most / three / any two named } characteristics in common (with the eukaryotes/Group C) ; OR the idea that (because) A is sensitive to antibiotics, A must be Bacteria therefore B is Archaea / eq ;</li> </ol>	(2)

Question Number	Answer	Mark
1 (b) (i)	<ol style="list-style-type: none"> <li>1. stacks / eq ;</li> <li>2. cisternae ;</li> <li>3. smooth membranes / no ribosomes / eq ;</li> <li>4. (cisternae) curved / flattened ;</li> <li>5. idea of different sizes (cisternae) ;</li> <li>6. presence of vesicles ;</li> </ol>	(3)

Question Number	Answer	Mark
*1 (b) (ii) QWC	<p>(QWC - Spelling of technical terms must be correct and the answer must be organised in a logical sequence)</p> <ol style="list-style-type: none"> <li>1. {<i>protein / polypeptides</i>} produced by <i>ribosome</i> ;</li> <li>2. <i>ribosomes</i> {held on/attached to/eq} rER ;</li> <li>3. <i>proteins</i> {stored / transported / within rER / eq} ;</li> <li>4. <i>proteins</i> {folded/assume 3-D shape/tertiary structure} within (lumen of) rER / eq ;</li> <li>5. (rER) produce <i>vesicles</i> / packages <i>proteins</i> /eq ;</li> <li>6. <i>vesicles</i> fuse with <i>Golgi</i> (apparatus) / eq ;</li> <li>7. <i>Golgi</i> {modifies/processes} <i>protein</i> ;</li> <li>8. details of modification e.g. <i>glycoprotein / carbohydrate</i> added, trimming of <i>carbohydrate</i> ;</li> <li>9. water removed (to concentrate) / eq ;</li> <li>10. <i>Golgi</i> produces {<i>lysosomes / secretory vesicles</i>} ;</li> </ol>	(6)

Question Number	Answer	Mark
2 (a)(i)	C ;	(1)

Question Number	Answer	Mark
2 (a)(ii)	B ;	(1)

Question Number	Answer	Mark
2 (a)(iii)	far right-hand box ;	(1)

Question Number	Answer	Mark
2 (a)(iv)	Bacteria / Eubacteria / Archaeobacteria / Archaea ;	(1)

Question Number	Answer	Mark
*2(b)(i) QWC	<p>(QWC - Spelling of technical terms must be correct and the answer must be organised in a logical sequence)</p> <ol style="list-style-type: none"> <li>1. cellulose ;</li> <li>2. as microfibrils ;</li> <li>3. (cellulose molecules) held together by hydrogen bonds / eq</li> <li>4. detail of microfibril (e.g. {bundle /correct stated number of}) cellulose molecules) ; ;</li> <li>5. correct reference to arrangement of microfibrils (in primary cell wall) ;</li> <li>6. reference to {matrix / hemicelluloses / pectins / eq} ;</li> <li>7. reference to primary and secondary cell walls ;</li> <li>8. detail of different laying down arrangement (in secondary cell wall) /reference to lignin ;</li> </ol>	max (4)

Question Number	Answer	Mark						
2 (b)(ii)	<table border="1"> <thead> <tr> <th>Feature described</th> <th>Name of feature</th> </tr> </thead> <tbody> <tr> <td>site where there was no cell wall and the cytoplasm linked the two adjacent cells</td> <td>plasmodesmata / plasmodesma ;</td> </tr> <tr> <td>dark line that is the boundary between one cell and the next cell</td> <td>middle lamella ;</td> </tr> </tbody> </table>	Feature described	Name of feature	site where there was no cell wall and the cytoplasm linked the two adjacent cells	plasmodesmata / plasmodesma ;	dark line that is the boundary between one cell and the next cell	middle lamella ;	(2)
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dark line that is the boundary between one cell and the next cell	middle lamella ;							

Question Number	Answer	Mark
3(a)		(1)

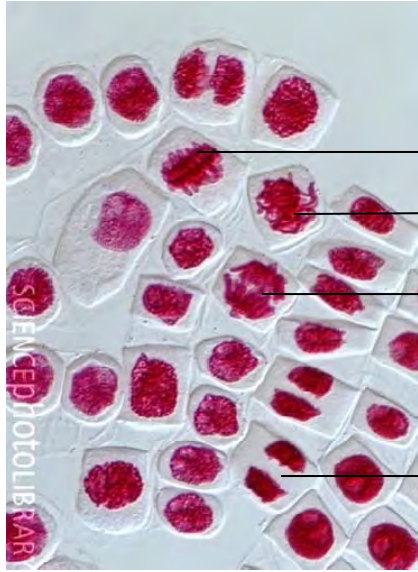
Question Number	Answer	Mark
3 (b) (i)	P = crista ; Q = matrix ; R = outer (mitochondrial) membrane / envelope / double membrane ;	(3)

Question Number	Answer	Mark
3 (b)(ii)	<ol style="list-style-type: none"> <li>1. (they carry out) (aerobic) respiration ;</li> <li>2. provide {ATP / energy / eq} ;</li> <li>3. to {move / drive the / eq} {flagellum / tail} ;</li> <li>4. allows sperm to swim / eq ;</li> <li>5. towards the {egg / eq} / {towards /along} the oviduct / eq ;</li> </ol>	max (3)

Question Number	Answer	Mark
3 (c)(i)	0.065 (%) ; ;	(2)

Question Number	Answer	Mark
3 (c)(ii)	16 ;	(1)

Question Number	Answer	Mark										
4(a)	<table border="1"> <thead> <tr> <th>Statements about cell division</th> <th>Meiosis is involved</th> </tr> </thead> <tbody> <tr> <td>Required for both sexual and asexual reproduction</td> <td></td> </tr> <tr> <td>Produces gametes</td> <td>✓ ;</td> </tr> <tr> <td>Crossing over can occur</td> <td>✓ ;</td> </tr> <tr> <td>Occurs in mammals but not flowering plants</td> <td></td> </tr> </tbody> </table>	Statements about cell division	Meiosis is involved	Required for both sexual and asexual reproduction		Produces gametes	✓ ;	Crossing over can occur	✓ ;	Occurs in mammals but not flowering plants		(2)
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Question Number	Answer	Mark
4(b)	 <p>A - metaphase ;  B - prophase ;  C - anaphase ;  D - telophase ;</p>	(4)

Question Number	Answer	Mark
4(c)(i)	site of {cell division / mitosis / actively dividing cells / meristem / eq };	(1)

Question Number	Answer	Mark
4(c)(ii)	to {soften the material / macerate / break middle lamella / eq};	(1)

Question Number	Answer	Mark
4(c)(iii)	{{(acetic) orcein / lacto-propionic orcein / toluidine (blue) / Schiffs / eq} ;	(1)

Question Number	Answer	Mark
4(c)(iv)	<p>each mark is for the risk + appropriate precaution</p> <ol style="list-style-type: none"> <li>1. cut and appropriate precaution ;</li> <li>2. acid and appropriate precaution ;</li> <li>3. heat and appropriate precaution ;</li> <li>4. stain and appropriate precaution ;</li> <li>5. coverslip and appropriate precaution ;</li> </ol>	<p>max (2)</p>