

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

Question Number	Answer	Mark
1 (a)(ii)	<ol style="list-style-type: none"> 1. B ; 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 ; 	(2)

Question Number	Answer	Mark
1 (b) (i)	<ol style="list-style-type: none"> 1. stacks / eq ; 2. cisternae ; 3. smooth membranes / no ribosomes / eq ; 4. (cisternae) curved / flattened ; 5. idea of different sizes (cisternae) ; 6. presence of vesicles ; 	(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"> 1. {<i>protein / polypeptides</i>} produced by <i>ribosome</i> ; 2. <i>ribosomes</i> {held on/attached to/eq} rER ; 3. <i>proteins</i> {stored / transported / within rER / eq} ; 4. <i>proteins</i> {folded/assume 3-D shape/tertiary structure} within (lumen of) rER / eq ; 5. (rER) produce <i>vesicles</i> / packages <i>proteins</i> /eq ; 6. <i>vesicles</i> fuse with <i>Golgi</i> (apparatus) / eq ; 7. <i>Golgi</i> {modifies/processes} <i>protein</i> ; 8. details of modification e.g. <i>glycoprotein / carbohydrate</i> added, trimming of <i>carbohydrate</i> ; 9. water removed (to concentrate) / eq ; 10. <i>Golgi</i> produces {<i>lysosomes / secretory vesicles</i>} ; 	(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"> 1. cellulose ; 2. as microfibrils ; 3. (cellulose molecules) held together by hydrogen bonds / eq 4. detail of microfibril (e.g. {bundle /correct stated number of}) cellulose molecules) ;; 5. correct reference to arrangement of microfibrils (in primary cell wall) ; 6. reference to {matrix / hemicelluloses / pectins / eq} ; 7. reference to primary and secondary cell walls ; 8. detail of different laying down arrangement (in secondary cell wall) /reference to lignin ; 	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)	<ol style="list-style-type: none"> 1. idea that individuals of a species can {interbreed / eq} ; 2. to produce fertile {offspring / eq} ; 3. the {hybrids / offspring} can flower and produce viable seeds / eq ; 	max (3)

Question Number	Answer	Mark
3(b)(i)	<ol style="list-style-type: none"> 1. {variety / eq} of alleles ; 2. in a gene pool / eq ; 	(2)

Question Number	Answer	Mark
3(b)(ii)	<ol style="list-style-type: none"> 1. different alleles in each of the two {populations / eq} ; 2. each {population / species} is adapted to live {in different environmental conditions / at different altitudes / eq} ; 3. there will have been different mutations in each population ; 4. reference to alleles from different {species / eq } will mix / hybrids receive alleles from both { species / eq} ; 	max (2)

Question Number	Answer	Mark
*3(c) QW	<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"> 1. reference to original population increasing in size and spreading into a wider diversity of {habitats / eq} ; 2. reference to mutations ; 3. leading to diversity in flowering times / eq ; 4. (and) other plant features / eq ; 5. reference to reproductive isolation ; 6. restriction in gene flow / eq ; 7. between extremes of population / eq ; 8. reference to different environmental factors in each region ; 9. each region has different selection pressures / eq ; 10. idea of plants adapted to a region ; 11. reference to survival and breeding ; 12. reference to change in allele frequencies (over time) ; 13. (leads to) differences between gene pools / eq ; 	<p>max (6)</p>

Question Number	Answer	Additional Guidance	Mark
4(a)	<p>(QWC - Take into account quality of written communication when awarding the following points)</p> <ol style="list-style-type: none"> Idea that in the rER insulin is folded e.g. forms {3-D shape, secondary / tertiary structure } ; idea of insulin being packaged into (transport) vesicles by the rER ; vesicles { move to / fuse with / eq } the Golgi apparatus / vesicles (fuse to) form the Golgi apparatus ; idea of insulin being changed in Golgi apparatus ; idea of insulin being transferred in (secretory) vesicles from the Golgi apparatus to the cell (surface) membrane ; vesicles (containing insulin) fuse with cell (surface) membrane / exocytosis ; 	<p>QWC emphasis on logical sequence</p> <p>ACCEPT Golgi and protein instead of insulin</p> <p>4. IGNORE folded, processed ACCEPT modified, described change e.g. add / remove sugars, glycosides, carbohydrate</p>	(4)

Question Number	Answer	Mark
4(b)(i)	C unspecialised cells that can differentiate to give rise to almost any type of cell in the body, excluding totipotent cells ;	(1)

Question Number	Answer	Additional Guidance	Mark
4(b)(ii)	<ol style="list-style-type: none"> idea of stimulus e.g. chemical ; idea that some genes are { active / switched on / expressed } ; idea of { transcription / mRNA produced } at active genes ; mRNA is { translated / used } to produce protein ; idea that this protein modifies cell OR idea that this protein determines { cell structure / function } ; 	<p>2. IGNORE genes being 'turned on'</p>	(4)