Question Number	Answer	Additional Comments	Mark
1(a)	animal ; bacterial ; (surface) membrane ; animal ; plant ; bacterial ; ribosomes ;	ACCEPT prokaryote instead of bacterial	(7)

Question Number	Answer	Additional Comments	Mark
1(b)			(4)

A cellulose molecule contains	True	False
Beta (β) glucose	☒	
1,4- glycosidic bonds	☒	
1,6- glycosidic bonds		☒
Magnesium atoms		☒

Question Number	Answer	Additional Guidance	Mark
2(a)	C;		**(1)**

Question Number	Answer	Additional Guidance	Mark
2(b)	1. reference to mitosis ; 2. (followed by) cytokinesis / {cells divide into 2 cells / eq}; 3. reference to repeated (many times) ;	**Not** meiosis **Ignore** binary fission, asexual reproduction	**(2)**

Question Number	Answer	Additional Guidance	Mark
2(c)(i)	1. i a that each (small) square represents 1% ; 2. {count / determine} numbe of squares containing *Pleurococcus* ; 3. edit an indication of how the percentage was calculated ;		**(2)**

Question Number	Answer	Additional Guidance	Mark
2(c)(ii)	A ;		**(1)**

Question Number	Answer	Additional Guidance	Mark
2(c)(iii)	1. idea of obtaining more data (outside) ; 2. reference to processing the data eg plotting a (scatter) graph, correlation test ; 3. credit correct reference to interpretation of {test / graph}; 4. reference to an extended study eg laboratory experiments ; 5. idea that the extended study would be repeated ; 6. ide of looking at results of previous studies ;	**Do not credit** ref to collecting data at different times of day **Accept** Spearman's rank, Pearson's correlation eg draw a line of best fit	**(3)**

Question Number	Answer	Additional Guidance	Mark
2(c)(iv)	1. suitable named factor ; 2. description of the possible effect on {numbers / distribution} ;	**Ignore** predators snails / grazers /herbivores / primary consumers — less as being eaten disease on trees — less as smaller habitat disease in *Pleurococcus* — less as being destroyed competition (from other organisms) — less due to lack of resources eg light, space	**(2)**

Question Number	Answer	Additional Guidance	Mark
3(a)	C ; nucleus and large (80S) ribosomes		**(1)**

Question Number	Answer	Additional Guidance	Mark
3(b)	A ; algae have chloroplasts, the fungi do not		**(1)**

Question Number	Answer	Additional Guidance	Mark
3(c)	1. (advantage of sexual reproduction / meiosis) {genetically different / greater gene pool / greater genetic diversity /eq} ; 2. (advantage of asexual reproduction / mitosis) faster / one of each organism needed / conserves advantageous alleles ;	**2. Accep** don't need a mate	**(2)**

Question Number	Answer	Additional Guidance	Mark
3(d)(i)	C ; area exposed to bright sunlight and protected from the wind		**(1)**

Question Number	Answer	Additional Guidance	Mark
3(d)(ii)	1. idea of using a quadrat ; 2. idea of {random / systematic} sampling (of wall) ; 3. {count number of squares/ determine area} containing lichen /eq ; 4. credit an indication of how the percentage was calculated ;	**1. Accep** description of quadrat, use of photo and a grid **3. N** reference to measuring percentage cover only is too vague as it is repeating stem of question	**(3)**

Question Number	Answer	Additional Guidance	Mark
3(d)(iii)	1. ref to use of light {probe / sensor /eq} ; 2. idea of taking several measurements ;	**1 Accept** description of a light sensor 2. ccept ref to places or times of day	**(2)**

Question Number	Answer	Additional Guidance	Mark
3(d)(iv)	1. plot a (scatter) graph of light intensity against lichen / eq ; 2. reference to looking for a correlation ; 3. reference to use of statistics test ; 4. appropriate named test eg Spearman's rank, Pearson ;	**2. Accep** ref to line of best fit, ref to correlation coefficient also gets Mp 3	**(3)**

Question Number	Answer	Mark
4(a)	1. A = rough endoplasmic reticulum / RER / rER ; 2. B = mitochondrion / mitochondria ; 3. C = nucleolus ;	**(3)**

Question Number	Answer	Mark
4 (b)	G ;	**(1)**

Question Number	Answer	Mark
4 (c)	C ;	**(1)**

Question Number	Answer	Mark
4 (d)		**(2)**

Statement		**No**
The structure labelled D is present in both animal and plant cells	☒	
The structure labelled E is the outermost layer in both animal and plant cells		☒