

# Mark Scheme (Results) Summer 2010

IGCSE

## IGCSE Biology (4325) Paper 1F

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IGCSE BIOLOGY 4325/1F - SUMMER 2010

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

Question Number	Answer	Mark
1(b)	C;	(1)

Question Number	Answer	Mark
1(c)	A;	(1)

Question Number	Answer	Mark
1(d)	C;	(1)

Question Number	Answer	Mark
1(e)	C;	(1)

Question Number	Answer	Mark
1(f)	D;	(1)

Question Number	Answer	Mark
1(g)	A;	(1)

Question Number	Answer	Mark
1(h)	C;	(1)

Question Number	Answer	Mark
1(i)	B;	(1)

Question Number	Answer	Mark
1(j)	B;	(1)

Question Number	Answer	Mark
2(a)	line to insect A from both plant X and plant Y; Ignore direction of arrow heads line to insect B from plant Y + arrow head to insect;	(2)

Question Number	Answer	Mark
2(b)	decrease / reduce / get smaller / death / eq;	(1)

Question Number	Answer	Mark
2(c)	insect A / insect B;	(1)

Question Number	Answer	Mark
2(d)	sun / light / sunlight;	(1)

Question Number	Answer	Mark
3(a)(i)	D;	(1)

Question Number	Answer	Mark
3(a)(ii)	F;	(1)

Question Number	Answer	Mark
3(a)(iii)	E;	(1)

Question Number	Answer	Mark
3(a)(iv)	(stores) bile;	(1)

Question Number	Answer	Mark
3(b)	fatty acid;	(1)

Question Number	Answer	Mark
4	carbon dioxide ( <i>from the air</i> ); light energy ( <i>from the sun</i> ); water ( <i>from the soil</i> ); starch ( <i>storage product</i> ); oxygen ( <i>is released back into the air</i> );	(5)

Question Number	Answer	Mark
5(a)	bronchiole;	(1)

Question Number	Answer	Mark
5(b)	heart;	(1)

Question Number	Answer	Mark
5(c)	glucose/ $C_6H_{12}O_6$ ; + oxygen/ $O_2$ ; either way $\longrightarrow$ ( <i>carbon dioxide</i> ) + water/ $H_2O$ ; + ( <i>energy</i> )	(3)

Question Number	Answer	Mark
5(d)	large surface area / lots / many; thin / one cell thick; moist; close to capillaries;	(2)

Question Number	Answer	Mark
6(a)	selective breeding /artificial selection;	(1)

Question Number	Answer	Mark
6(b)	high yield + strong short stem;	(1)

Question Number	Answer	Mark
6(c)(i)	pieces of wheat/plant; explants; grown in agar / eq;	(2)

Question Number	Answer	Mark
6(c)(ii)	identical plants / clones; lots; quick;	(2)

Question Number	Answer	Mark
6(c)(iii)	no variation / one gets disease, all get disease / eq;	(1)

Question Number	Answer	Mark
7(a)	sensory / motor / nerves / neurones;	(1)

Question Number	Answer	Mark
7(b)	brain;	(1)

Question Number	Answer	Mark
7(c)(i)	A retina; B optic nerve;	(2)

Question Number	Answer	Mark
7(c)(ii)	(ciliary muscle) contract / shorten / eq; (lens) fatter /eq;	(2)

Question Number	Answer	Mark
7(d)	adrenaline;	(1)

Question Number	Answer	Mark
8	pancreas; glucose / (excess) sugar; bacteria; fermenter / bioreactor;	(4)

Question Number	Answer	Mark												
9	<table border="1"> <thead> <tr> <th>Feature</th> <th>Type of living organism</th> </tr> </thead> <tbody> <tr> <td>have cellulose cell walls</td> <td>(plants)</td> </tr> <tr> <td>all are parasitic and have a protein coat</td> <td>viruses;</td> </tr> <tr> <td>are microscopic and contain circular DNA</td> <td>bacteria;</td> </tr> <tr> <td>some have structures called hyphae</td> <td>fungi;</td> </tr> <tr> <td>cells have a nucleus but no cell wall</td> <td>animals;</td> </tr> </tbody> </table>	Feature	Type of living organism	have cellulose cell walls	(plants)	all are parasitic and have a protein coat	viruses;	are microscopic and contain circular DNA	bacteria;	some have structures called hyphae	fungi;	cells have a nucleus but no cell wall	animals;	(4)
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Question Number	Answer	Mark
10(a)	transfers/carries/takes pollen (by insects) / eq; (from anther) to stigma;	(2)

Question Number	Answer	Mark
10(b)(i)	first box ticked;	(1)

Question Number	Answer	Mark
10(b)(ii)	(sun)light / heat;      Ignore sun alone photosynthesis; attract insects; enzymes;	max  (2)

Question Number	Answer	Mark
10(c)	<p>Stems</p> <p>away / up / against gravity / negative geotropism; sun / light / carbon dioxide / photosynthesis;</p> <p>Roots</p> <p>toward gravity / down / positive geotropism; water / minerals / ions / named mineral ion / anchorage / nutrients / eq;</p>	(4)



Question Number	Answer	Mark
11(a)(i)	<p>A cell membrane controls what enters/leaves the cell / permeability / holds cell contents / engulf / eq;</p> <p>B cytoplasm (chemical) reactions / respiration / metabolism / synthesis / enzymes / eq;</p> <p>C nucleus; controls (cell activity) / contains DNA/genetic material / eq; Ignore brain</p>	(4)

Question Number	Answer	Mark
11(a)(ii)	digestion / breakdown; Ignore destroyed / killed / dissolves / eq; enzymes;	(2)

Question Number	Answer	Mark
11(b)	lymphocytes / memory cell / plasma cell; antibodies / antitoxins; clump bacteria/pathogen/microorganism / neutralise / eq; Ignore kill/destroy	max (2)

Question Number	Answer			Mark																					
12	<table border="1"> <thead> <tr> <th>condition</th> <th>symptom</th> <th>organ affected</th> </tr> </thead> <tbody> <tr> <td>emphysema</td> <td>poor gas exchange</td> <td>lung;</td> </tr> <tr> <td>cataract</td> <td>cloudy lens</td> <td>eye;</td> </tr> <tr> <td>Alzheimer's</td> <td>loss of memory</td> <td>brain / CNS;</td> </tr> <tr> <td>coeliac</td> <td>poor food absorption</td> <td>(small) intestine / duodenum / ileum; Ignore gut / large intestine</td> </tr> <tr> <td>arthritis</td> <td>swollen joints</td> <td>(bones)</td> </tr> <tr> <td>infertility</td> <td>lack of sperm</td> <td>testis / eq;</td> </tr> </tbody> </table>			condition	symptom	organ affected	emphysema	poor gas exchange	lung;	cataract	cloudy lens	eye;	Alzheimer's	loss of memory	brain / CNS;	coeliac	poor food absorption	(small) intestine / duodenum / ileum; Ignore gut / large intestine	arthritis	swollen joints	(bones)	infertility	lack of sperm	testis / eq;	(5)
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Question Number	Answer	Mark
14(a)(i)	competition / compete; minerals / named mineral / nutrient; water; light; carbon dioxide; Ignore space	max    (2)

Question Number	Answer	Mark
14(a)(ii)	herbicide / weedkiller / chemical that kills / pull them out / biological control / pesticide / eq; Ignore ploughing / fertiliser / chemicals	   (1)

Question Number	Answer	Mark
14(b)(i)	less leaf / less area / less surface / less chloroplasts / less chlorophyll / eq; Ignore eat/feed (less) light trapped / eq; (less) photosynthesis;	   (2)

Question Number	Answer	Mark
14(b)(ii)	pesticide / insecticide; biological control / introduce predator/parasite / pheromones / sterile males / eq; GM;	   (2)

Question Number	Answer	Mark
15(a)	<p>Aa                      Aa;</p> <p>A    a                      A    a;</p> <p>AA Aa Aa aa;</p> <p>brown brown brown albino / 3 brown + 1 albino; allow normal as eq to brown</p> <p>Ignore not albino Ignore genotype descriptions</p>	(4)

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Question Number	Answer	Mark
15(b)(ii)	<p>easily seen / not camouflaged / cannot hide / eq; predators / eaten / killed / do not survive / selected against / eq; less chance of mating / eq; allow converse</p>	<p>max</p> <p>(2)</p>

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