Independent Schools Examinations Board

COMMON ENTRANCE EXAMINATION AT 13+

SCIENCE

BIOLOGY

MARK SCHEME

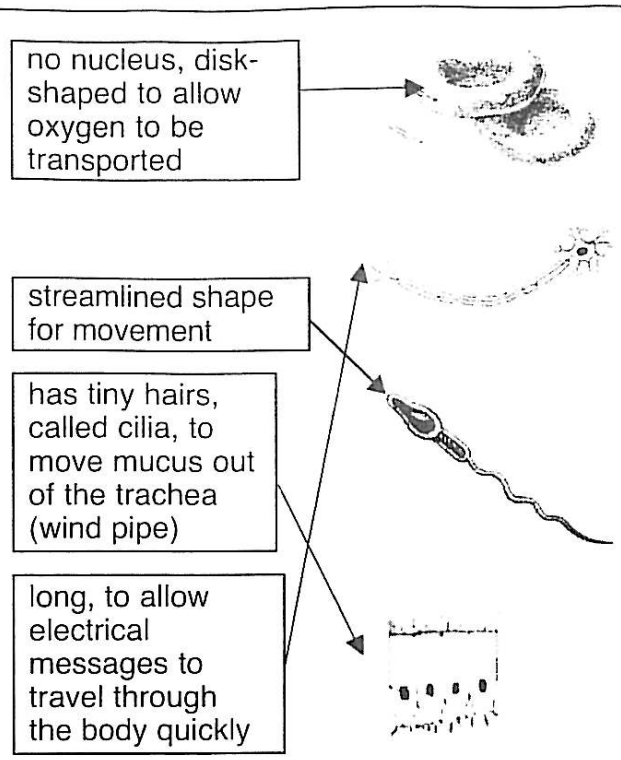
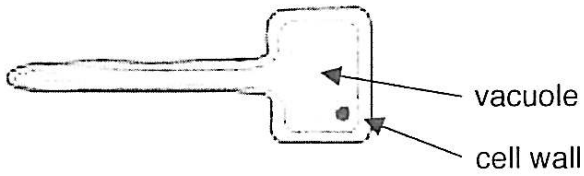
This is a suggested, not a prescriptive, mark scheme.

Monday 6 June 2011

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Q.	Answer	Mark	Additional Guidance
1. (a)	respire	9	
(b)	cell membrane		
(c)	fertilisation		
(d)	glucose		
(e)	plant		
(f)	height		
(g)	herbivores		
(h)	many chloroplasts		
(i)	blue/black		
2. (a)	glucose → carbon dioxide + water	3	deduct 1 mark for each mistake
(b)	large surface area/good blood supply/moist/thin walled	1	only one needed
(c)	starch is broken down into glucose by enzymes/amylase in the digestive system/mouth/saliva/small intestine absorbed through the walls of the small intestine	3	any three suitable ideas
(d)	*smoking:* (lung) cancer/bronchitis/emphysema/heart attack/stroke *alcohol:* liver damage/brain damage	2	accept any suitable effect

Q.	Answer	Mark	Additional Guidance
3. (a)		4	1 mark for each correct label
(b) (i)	root hair cell	1	
(ii)		2	
(iii)	chloroplast	1	
(iv)	contain chlorophyll absorb light energy for photosynthesis	2	any two suitable ideas

Q.	Answer	Mark	Additional Guidance
4. (a)	place quadrat randomly identify limpet count limpets repeat(s) find average number of limpets per m^2 multiply this average number per m^2 by 100 *safety point:* wear suitable footwear wash hands after handling organisms tread carefully on slippery rocks	4	any three suitable ideas 1 mark for appropriate comment on safety
(b)	(1 year) after a decrease in the limpet population, there is also a decrease in the dog whelk population an increase in the limpet population seems to cause an increase in the dog whelk population the size of each population follows a similar pattern	**2**	any two appropriate ideas
(c)	decreased in size	**1**	
(d)	dog whelks feed off limpets and they did not have enough food	**1**	
(e)	*e.g.:* insects: 6 legs spiders/arachnids: 8 legs	**2**	any suitable group with appropriate characteristic

<table>
<tr><th>Q.</th><th>Answer</th><th>Mark</th><th>Additional Guidance</th></tr>
<tr><td>5. (a)</td><td><table><tr><th>type of music playing</th><th>average no. of words remembered</th></tr><tr><td>pop</td><td>8</td></tr><tr><td>classical</td><td>10</td></tr><tr><td>silence</td><td>12</td></tr></table></td><td>2</td><td></td></tr>
<tr><td>(b)</td><td>same number of words (20 words)
same words used (with each type of music)
same people each time
same length of time to write down words</td><td>2</td><td>any two appropriate ideas</td></tr>
<tr><td>(c)</td><td>labelling type of music on x-axis
correct linear scale for y-axis
bars drawn correctly</td><td>4</td><td>award 1 mark
award 1 mark
deduct 1 mark for each mistake</td></tr>
<tr><td>(d)</td><td>most words remembered with no music
least words remembered with pop music
more words remembered with classical music compared with pop music
e.g.:
two more words were remembered with classical music compared with pop music</td><td>3</td><td>any two appropriate ideas
award 1 mark for correct references to figures from the table/graph</td></tr>
<tr><td>(e)</td><td>test more people
make further repeats for each type of music</td><td>2</td><td></td></tr>
<tr><td>6. (a)</td><td>kestrel could become extinct
one/both birds may die before breeding</td><td>1</td><td>do not accept ‘they might die’ without any qualification about increased likelihood with small numbers</td></tr>
<tr><td>(b)</td><td>crops → insect → gecko → Mauritius kestrel</td><td>2</td><td>deduct 1 mark for each mistake</td></tr>
</table>

Q.	Answer	Mark	Additional Guidance
(c)	sharp talons sharp beak good eyesight good hearing travel fast	2	any two suitable adaptations
(d)	increase habitat/plant trees/put up nest boxes provide more places to live and breed so more chicks can be raised, thus increasing population captive breeding programme, e.g. in zoos increase number of chicks born and released into wild in order to increase population kill/remove cats fewer predators, so fewer kestrels eaten, thus increasing population monitor disease in kestrels maybe fewer birds will die of disease once understood better, thus increasing population	4	any two suitable suggestions with explanations
Total		**60**	