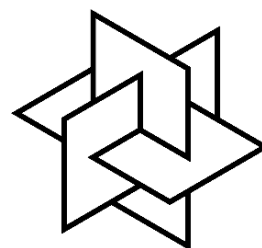


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CE AT 13+

**SCIENCE**



**ISEB**

Independent Schools  
Examinations Board

## Core Biology Specimen Paper Mark Scheme

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Date













### Information

This is a suggested, not a prescriptive mark scheme.

Specimen

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Q.	Answer	Mark	Additional Guidance															
1.	a) methylene blue b) calcium c) zygote d) lungs e) photosynthesis f) chlorophyll g) a unicellular organism h) place quadrats randomly in the field	8																
2.	<table><tr><th>picture</th><th></th><th>description</th></tr><tr><td></td><td></td><td>cell</td></tr><tr><td></td><td></td><td>organ</td></tr><tr><td></td><td></td><td>organ system</td></tr><tr><td></td><td></td><td>organism</td></tr></table>	picture		description			cell			organ			organ system			organism	3	3 marks for all correct 2 marks for 3 correct 1 mark for 2 correct
picture		description																
		cell																
		organ																
		organ system																
		organism																
3.	a) anther	1																
	b) the insect transfers <b>pollen</b> onto the <b>stigma</b>	2	1 mark for each correct term															
4.	a) <i>continuous variation</i> : height, body mass  <i>discontinuous variation</i> : eye colour, hair colour and blood groups	1  2	both required for 1 mark 2 marks for all correct 1 mark for at least one correct															
	b) i) average height: 136.4 cm  average mass: 45.8 kg	1  1																
	ii) 64 cm	1																
	c) better quality food	1	accept other appropriate answers, e.g. better healthcare, vaccinations against disease															

Q.	Answer	Mark	Additional Guidance
5.	a) hard exoskeleton	1	accept other appropriate characteristics, e.g. no backbone
	jointed limbs	1	
	b) light and dry    dark and dry total                      4                      24	1	
	c) woodlice prefer damp conditions to dry conditions	1	
	woodlice prefer dark conditions to light conditions	1	
	most woodlice are found in dark and damp conditions	1	
	correct use of figures	1	
6.	d) repeating the experiment increases the number of results	1	accept other appropriate answers
	and allows a more reliable average to be calculated	1	
	a) i) increase in sunlight, increase in carbon dioxide levels	1	accept any appropriate factor, except temperature any appropriate suggestion
	ii) increase in rate of photosynthesis produces sugar (stored in the grapes) more quickly, producing a greater crop of grapes	1	
	which allows wine to be produced more quickly, creating more revenue	1	
	b) i) yeast	1	accept any appropriate name 1 mark for each
	ii) fungus	1	
	iii) glucose → <u>alcohol</u> + <u>carbon dioxide</u> + some energy	2	
	c) it causes damage to liver/cirrhosis	1	accept other effects of alcohol abuse, e.g. depression, increased risk of accidents  do not accept: 'getting drunk', without further qualification
	d) regular exercise eating a balanced diet	2	accept any two appropriate suggestions

Q.	Answer	Mark	Additional Guidance
7.	a) small ears white coat insulating layer of fat thick fur	2	accept any two appropriate suggestions
	b) they need more energy to find less food depleting body fat/energy available to them decreasing chances of survival/ability to have cubs successfully	1 1	accept any appropriate suggestion
	c) i) microscopic plants → small fish → cod → seal → polar bear ii) sunlight/Sun	2 1	1 mark for arrows pointing to the right
	d) the number/proportion of populations declining is increasing  the numbers of populations which are increasing/stable are decreasing	1 1	
	e) the bears are wild animals and their behaviour will be unpredictable in towns  they are a threat to the people's safety because they are dangerous hunters	1 1	any appropriate answer
	a) i) the bubbles from Canadian pondweed contain more oxygen than bubbles of air (50% compared to 20%)  because photosynthesis produces oxygen ii) the bubbles from Canadian pondweed contain more carbon dioxide than bubbles of air  because respiration produces carbon dioxide	1 1 1	use of % values not required
	b) green plants produce oxygen which animals need in order to breathe  green plants are producers in food chains within the rivers	1 1	accept 'animals eat green plants'
9.	a) type of food packaging	1	
	b) the tray that was open to the air became mouldy  more quickly than the box with a lid  the sealed bag kept the fungi (spores) out	2	any 2 appropriate answers
<b>Total</b>		<b>60</b>	