Independent Schools Examinations Board

COMMON ENTRANCE EXAMINATION AT 13+

SCIENCE

LEVEL 2

BIOLOGY

MARK SCHEME

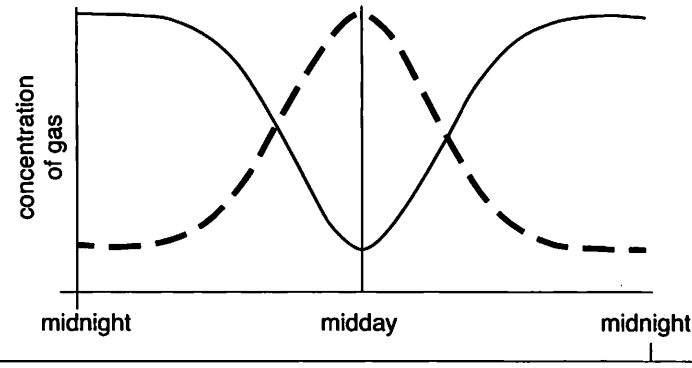
This is a suggested, not a prescriptive, mark scheme.

Monday 27 January 2014

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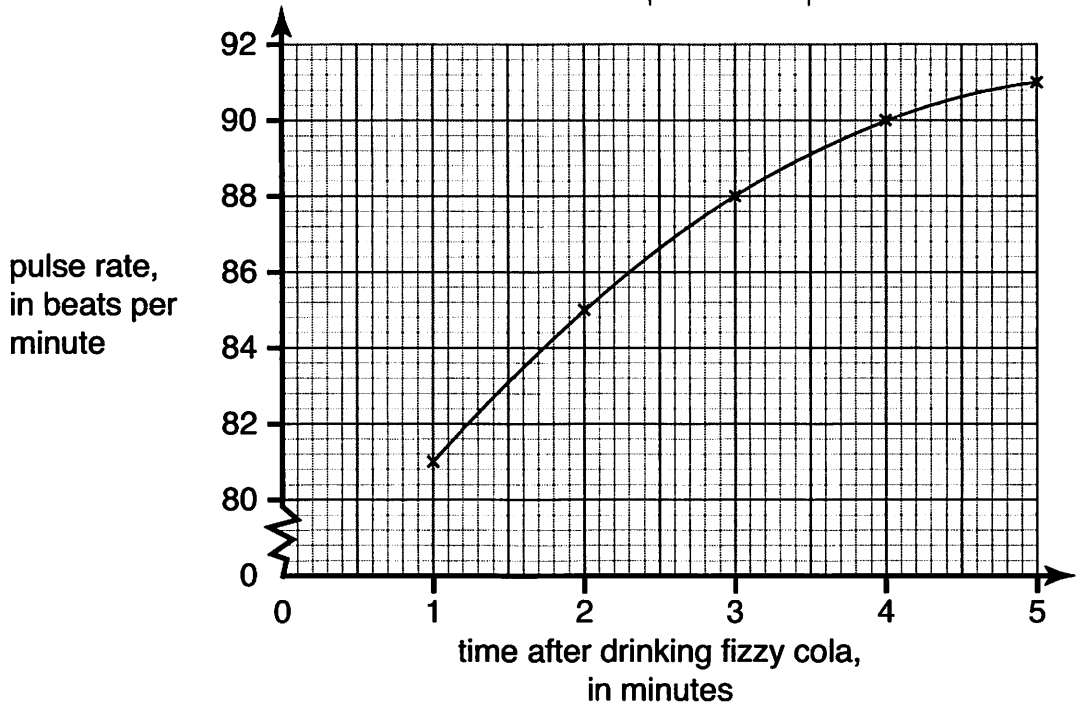
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Q.	Answer	Mark	Additional Guidance
1. (a)	grow	8	
(b)	blue/black		
(c)	a carnivore		
(d)	DNA		
(e)	oranges		
(f)	respiration		
(g)	have a large surface area		
(h)	carbon dioxide		
2. (a) (i)	protein	1	
(ii)	meat/fish/dairy products	1	accept any suitable example
(iii)	vitamins	1	
	minerals	1	
(b) (i)	to help development/bone growth of the baby	1	
(ii)	cheese	1	
(c)	weight gain/obesity high blood pressure cause damage/wear to joints	2	1 mark for each valid point
3. (a)	cell **A**	1	
(b)	*name:* sperm (cell)	1	
	function: reproduction/passing on male DNA/genes/fertilise egg cell (ovum)	1	
(c)	chloroplast vacuole cell wall	2	1 mark for each valid point

Q.	Answer	Mark	Additional Guidance
(d)	mitochondria → main site of energy release in respiration nucleus → chemical reactions take place here cytoplasm → controls entry and exit of substances into and out of the cell cell membrane → controls the activities of the cell	3	deduct 1 mark for each error
4. (a)	larger surface area absorbs more light energy/photosynthesis	2	
(b)	water glucose	2	
(c)	chlorophyll	1	
(d) (i)	level falls during the day minimum level at midday level rises during the night	2	1 mark each for two valid points
(ii)	during the day there is more light more photosynthesis takes place carbon dioxide is absorbed (by the leaves)	2	1 mark each for two valid points
(e)	*line drawn shows:* levels rising during the day levels falling during the night *e.g. the dotted line below*  	2	

Q.	Answer	Mark	Additional Guidance
5. (a)	sharp teeth/large jaws/space for attachment of large muscles/forward facing eye sockets	1	any suitable suggestion
(b)	seaweed → (herbivorous) fish → (small) dinosaur → pliosaur	2	deduct 1 mark for each error
(c)	scales lay eggs (with leathery shells) cold blooded	2	accept any suitable characteristics
(d) (i)	water can support heavier animals bones cannot support weight of heavier animals on land more abundant food supplies in the sea	1	any suitable suggestion
(ii)	blubber for insulation large lungs large tail fin for diving	2	accept any suitable suggestions 1 mark for each valid point
6. (a)	as a comparison/to be able to look for a change	1	
(b)	71 beats per minute	2	correct answer awarded 2 marks 1 mark for correct working if answer wrong
(c)	more reliable/in case he made a mistake with one of them	1	reject 'fair test'

Q.	Answer	Mark	Additional Guidance
(d) (i)	*x-axis scale completed correctly* *y-axis linear scale completed and use of sensible scale*	**2**	
(ii)	*5 points correctly plotted* *points joined together using a curve* *for example:*	**2** **1**	deduct 1 mark for each error
(iii)	fizzy cola increases the heart rate increase is greater at first, then rate increases at a slower rate.	**2**	credit correct use of numbers in answer
(iv)	idea of a control/comparison experiment to check it is not just because cola is fizzy to check it is the caffeine which is having the effect	**2**	1 mark for each valid point



Q.	Answer	Mark	Additional Guidance
(v)	find resting heart rate suitable type of exercise stated, e.g. star jumps, walking, jogging, sprinting suitable time period of exercise stated, e.g. 5 minutes measure heart rate after exercise repeats find average	**4**	1 mark for each valid point
Total		**60**	