Independent Schools Examinations Board

COMMON ENTRANCE EXAMINATION AT 13+

SCIENCE

LEVEL 2

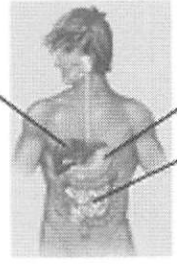
BIOLOGY

MARK SCHEME

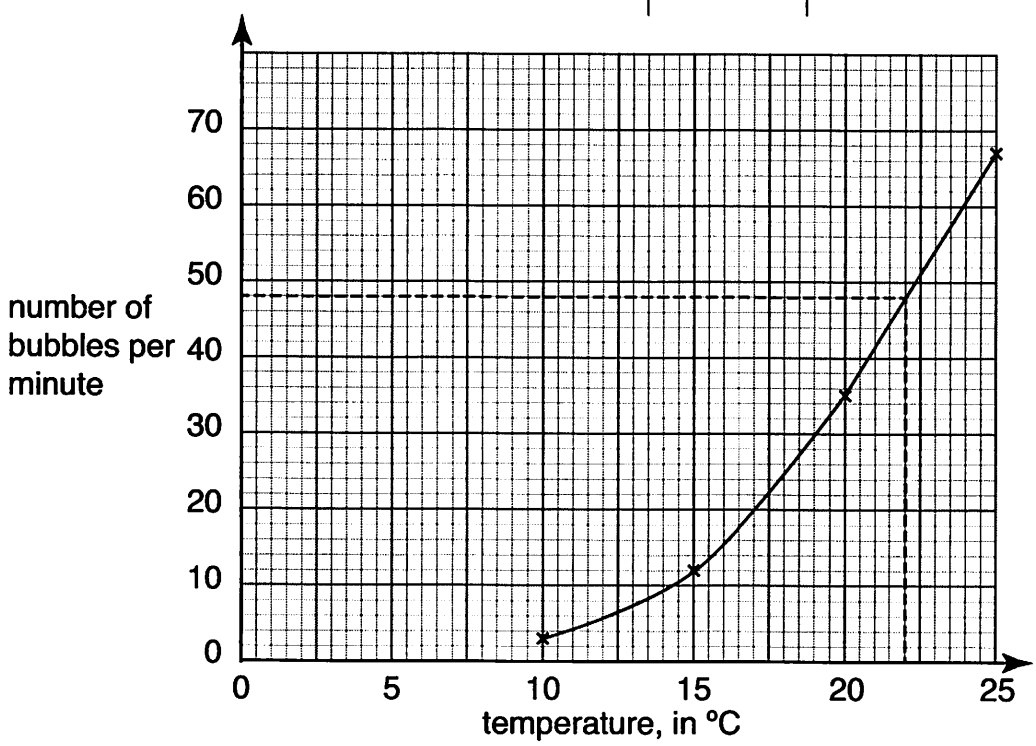
This is a suggested, not a prescriptive, mark scheme.

Monday 4 November 2013

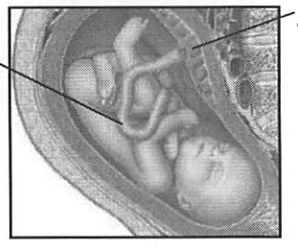
Q.	Answer	Mark	Additional Guidance
1. (a)	methylene blue	8	
(b)	fertilisation		
(c)	height		
(d)	egestion		
(e)	carbon dioxide		
(f)	50%		
(g)	respiration		
(h)	8 legs		
2. (a) (i)	sperm	1	
	streamlined shape/tail for swimming/half DNA	1	
(ii)	root hair cell	1	
	large surface area/large projection (to absorb water/minerals)	1	
(b) (i)	*name of first organ*	1	accept any suitable organ and any correct adaptation
	how this named organ is adapted	1	
(ii)	*name of second organ*	1	
	how this named organ is adapted	1	
	for example: lungs – large surface area/alveoli		
	(small) intestine – large surface area/villi		
3. (a) (i)	*food group identified, for example:* protein, carbohydrate, fibre	1	accept any suitable suggestions
(ii)	*correct source of this food group from menu A, for example:* chicken, potatoes, green beans	1	
(iii)	*correct use of the named food group, for example:* growth/repair, energy source, maintain healthy gut/prevent constipation	1	

Q.	Answer	Mark	Additional Guidance
(b)	gain weight/lead to obesity high blood pressure heart disease strain on joints	**2**	1 mark for each valid point up to a maximum of 2
4. (a)	 liver stomach (small) intestine	**3**	1 mark for each correct label
(b)	(food is) broken down/to soluble molecules/ smaller molecules in the gut so that it can be absorbed into the blood	**3**	1 mark for each valid point up to a maximum of 3
(c)	amylase breaks down starch to simple sugars/glucose/maltose	**1** **1** **1**	credit alternative enzymes and their roles in digestion

Q.	Answer	Mark	Additional Guidance
5. (a)	carbon dioxide (concentration) light (intensity)	2	1 mark for each valid point up to a maximum of 2
(b) (i)	suitable x-axis scale completed correctly suitable y-axis scale completed correctly	2	
(ii)	4 points correctly plotted	2	deduct 1 mark for each error made when plotting
(iii)	points joined together using a suitable curve of best fit *for example:*	1	∴ not needed



Q.	Answer	Mark	Additional Guidance
(iv)	number of bubbles increase with temperature slowest rate of increase at low temperatures/etc.	**2**	credit correct use of numbers/data in answer
(v)	48 ± 2 correct working shown on graph (see dotted line on graph opposite)	**2**	error carried forward if graph plotted incorrectly in part (b)
(c)	oxygen relights a glowing splint	**1** **1**	 if CO_2 given, give credit for 'limewater turns milky'
6. (a)	*for example:* grass → ant → mouse → eagle	**2**	accept any suitable food chain relating to the diagram award 1 mark if the food chain is in reverse i.e. starting with 'eagle'
(b)	eagle snake	**2**	
(c) (i)	*eagle population:* decrease *because:* less food/mice to eat	**1** **1**	
(ii)	*grasshopper population:* increase *because:* fewer predators	**1** **1**	

Q.	Answer	Mark	Additional Guidance
7. (a)	9 months/36–40 weeks	1	
(b)	oviduct/fallopian tube zygote uterus/womb carbon dioxide/any correct waste product oxygen/any correct substance which passes from mother to fetus	5	
(c)	placenta umbilical cord 	2	1 mark for each correct label
(d)	surrounded by (amniotic) fluid/amnion	1	1 mark for any valid point
Total		60	