Cambridge Secondary 1 Progression Test

Mark scheme

Cambridge Secondary 1

Science

Stage 8

89366/8RP

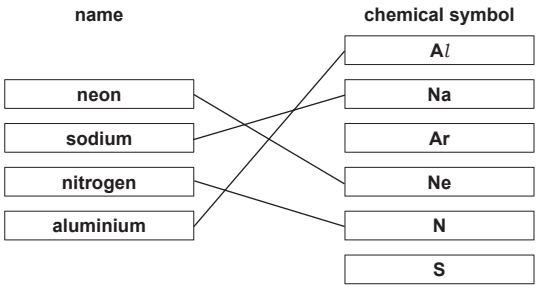
CAMBRIDGE International Examinations

This table gives general guidelines on marking answers involving units of length. For questions involving other quantities, correct units are given in the answers. The table shows acceptable and unacceptable versions of the answer 1.85 m.

	Correct answer	Also accept	Do not accept
Units are not given on answer line and the question does not specify a unit	1.85 m	Correct conversions provided the unit is stated, e.g. 1 m 85 cm 185 cm 1850 mm 0.00185 km	1.85 185 m
If the unit is given on the answer line, e.g. .....m	.....1.85.....m	Correct conversions, provided the unit is stated unambiguously, e.g. .....185 cm ..... m	.....185.....m .....1850.....m etc
If the question states the unit that the answer should be given in. e.g. "Give your answer in metres"	1.85 m	1.85 1 m 85 cm	185; 1850 Any conversions to other units.

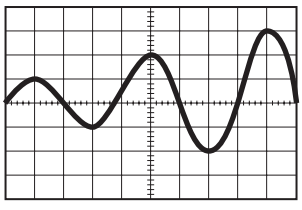
Stage 8 Paper 1 Mark Scheme

Question	**1**		
Part	**Mark**	**Answer**	**Further Information**
(a)	2	**X** = vein(s) **Y** = artery / arteries	**Accept** phonetic spelling **Ignore** named vessels e.g Vena Cava or Aorta
(b)	1	lung(s)	
Total	**3**		

Question	2		
Part	**Mark**	**Answer**	**Further Information**
(a)	4		each correct answer = 1 mark more than one line from any name is incorrect
(b)	2	**aluminium** neon nitrogen **sodium**	
(c)	3	**Any three from:** high melting point high boiling point (good) conductor of heat (good) conductor of electricity malleable sonorous ductile high tensile strength hard high density lustrous	1 mark for each property **Accept** solid at room temperature if melting and boiling point not mentioned **Accept** (good) conductor for 1 mark if unqualified **Accept** can be worked into shapes **Accept** rings when hit **Accept** can be drawn into wires **Accept** strong **Ignore** tough **Ignore** heavy **Accept** shiny **Accept** chemical properties such as: form positive ions are reducing agents form basic oxides form ionic compounds with non metals
Total	**9**		

Question	3		
Part	**Mark**	**Answer**	**Further Information**
(a)	2	repel idea of having two poles that are the same	**Accept** the hanging magnet moves away
(b)	1	the idea that the iron stand is attracted to the magnet	**Accept** the magnet is attracted / moves towards iron stand
Total	**3**		

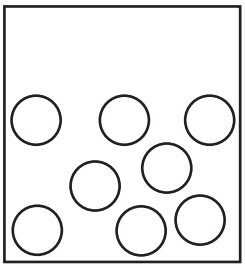
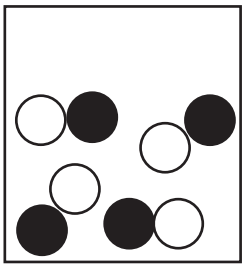
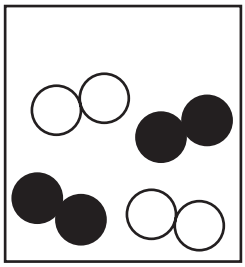
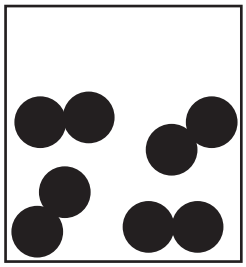
Question	4		
Part	**Mark**	**Answer**	**Further Information**
(a)	2	**A** = oesophagus **B** = large intestine	**Accept** gullet **Accept** colon
(b)	1	absorption (of nutrients) / chemical digestion / enzyme digestion	**Accept** specific examples of digestion e.g. fats are broken down / fats are emulsified / carbohydrates to sugars / proteins to amino acids or peptides
Total	**3**		

Question	5		
Part	**Mark**	**Answer**	**Further Information**
(a)	2	Sound is a type of **energy**. Sound is made when the particles in the air **vibrate**.	
(b)(i)	1	**D**	
(b)(ii)	1	**C**	
(b)(iii)	2	size of wave length stays the same height of wave increases from left to right	
Total	**6**		

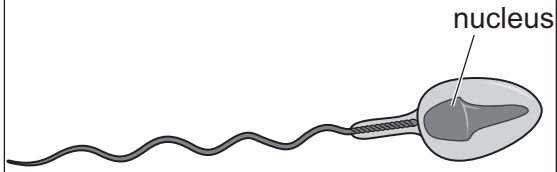
Question	6		
Part	**Mark**	**Answer**	**Further Information**
(a)	4	*x*-axis labelled time in minutes **and** *y*-axis labelled heart rate in beats per minute = 1 mark	**Accept** time / min **Do not accept** time / m **Accept** heart rate / bpm **Accept** units placed in brackets
		four correctly plotted points = 2 marks **but** **two or three** correctly plotted points = 1 mark	**Accept** a plotting error of ± half a square
		smooth curve through most of the points = 1 mark	**Accept** curve if plots are incorrect
(b)	1	result from the learner's graph for 2 minutes	**Accept** ±4 beats per minute
(c)	2	**Any two from:**	
		(muscles/cells) need more oxygen / oxygen supplied faster	**Accept** O_2
		(muscles/cells) need more glucose / glucose supplied faster	**Accept** $C_6H_{12}O_6$ **Ignore** sugar
		removal of more carbon dioxide / carbon dioxide removed faster (from muscles/cells)	**Accept** CO_2
Total	**7**		

[Turn over

Question	7		
Part	**Mark**	**Answer**	**Further Information**
(a)	2	**Any two from:** same distance between timing gates same (surface on) ramp same height same position of start line idea that the toy always travels parallel to edge of ramp	**Ignore** reference to releasing
(b)(i)	2	distance between the timing gates (in metres) time taken to travel between the timing gates (in seconds)	distance alone is not sufficient time alone is not sufficient
(b)(ii)	3	$\frac{\text{distance}}{\text{time}}$ / $\frac{1}{2.5}$ 0.4 m/s	correct answer with no working out = 2 marks **Accept** metres per second
Total	**7**		

Question	8		
Part	**Mark**	**Answer**	**Further Information**
(a)	4	 element  compound  mixture  element	each correct label = 1 mark
(b)	2	hydrogen + oxygen → water correct reactants and arrow = 1 mark arrow and correct product = 1 mark	**Accept** = instead of → **Accept** reactants in either order **Accept** H_2 and O_2 and arrow **Accept** arrow and H_2O
Total	**6**		

<table>
<tr><td>Question</td><td>9</td><td colspan="2"></td></tr>
<tr><td>Part</td><td>Mark</td><td>Answer</td><td>Further Information</td></tr>
<tr><td>(a)</td><td>2</td><td>
<table>
<tr><td>If an egg is present the sperm enters the egg.</td><td>5</td></tr>
<tr><td>The journey continues into the oviduct (fallopian tube).</td><td>4</td></tr>
<tr><td>Sperm is deposited in the vagina.</td><td>1</td></tr>
<tr><td>Sperm travels through the cervix.</td><td>2</td></tr>
<tr><td>Sperm swim across the uterus (womb).</td><td>3</td></tr>
</table>
</td><td>5 and 4 in the correct place = 1 mark

2 and 3 in the correct place = 1 mark</td></tr>
<tr><td>(b)(i)</td><td>1</td><td>label, A, pointing to the tail
 
</td><td></td></tr>
<tr><td>(b)(ii)</td><td>1</td><td>label, B, pointing to the nucleus
 
</td><td>Ignore labelled head of sperm cell</td></tr>
<tr><td>(c)</td><td>2</td><td>Any two from:

idea that both eggs can be fertilised

idea that this will lead to the development of twins

idea of non-identical twins</td><td></td></tr>
<tr><td>Total</td><td>6</td><td colspan="2"></td></tr>
</table>

Stage 8 Paper 2 Mark Scheme

Question	1		
Part	**Mark**	**Answer**	**Further Information**
(a)	1	any value between 12 and 18	**Accept** any range between these values
(b)	2	oxygen + glucose → carbon dioxide + water	correct reactants in any order = 1 mark correct products in any order = 1 mark **Accept** correct formulae O_2, $C_6H_{12}O_6$, CO_2, H_2O
Total	**3**		

Question	2		
Part	**Mark**	**Answer**	**Further Information**
(a)	1	photosynthesis	
(b)	2	**Any two from:** carbon dioxide is needed for photosynthesis more photosynthesis / more food is made / bigger plants / increased crop yield / faster growth	**Accept** CO_2
(c)	2	**Any two from:** height (dry) mass number of tomatoes (fruits) surface area of leaves / number of leaves	**Accept** weight
Total	**5**		

Question	3		
Part	**Mark**	**Answer**	**Further Information**
(a)	1	roots / root hairs	
(b)	1	osmosis / through cell walls (of root hair cells) / absorption (through roots)	
(c)	3	**Any three from:** transported (away) (transports) minerals / sugars travels up the stem goes to the leaves / other named part(s) of the plant (used in) photosynthesis evaporates (through leaves) / transpiration	 **Accept** travels through the xylem **Accept** goes to stomata / leaf pore **Accept** is lost to the air
Total	**5**		

Question	4		
Part	**Mark**	**Answer**	**Further Information**
	3	**elements** **compound** **magnesium** + oxygen → magnesium oxide lead + **sulfur** → lead sulfide copper + chlorine → **copper chloride**	 **Accept** sulphur **Do not accept** chlorine in place of chloride
Total	**3**		

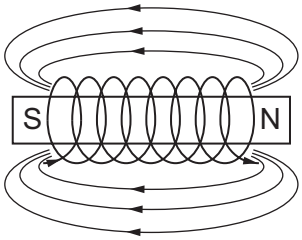
Question	5		
Part	**Mark**	**Answer**	**Further Information**
	3	carbon hydrogen oxygen	**Accept** any order
Total	**3**		

Question	6		
Part	**Mark**	**Answer**	**Further Information**
	3	red **orange** **yellow** **green** **blue** **indigo** violet	orange and yellow in correct place = 1 mark green in correct place = 1 mark blue and indigo in correct place = 1 mark
Total	**3**		

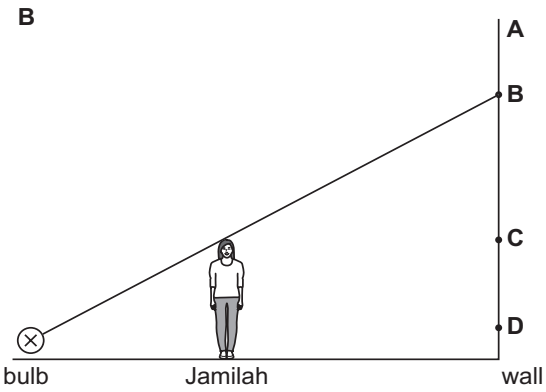
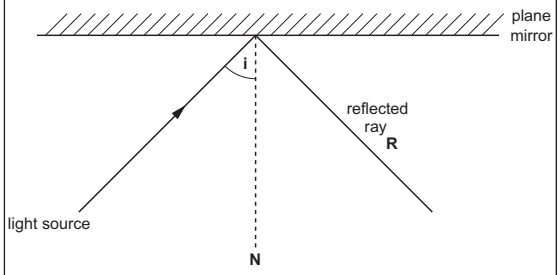
<table>
<tr><td>Question</td><td>7</td><td colspan="2"></td></tr>
<tr><td>Part</td><td>Mark</td><td>Answer</td><td>Further Information</td></tr>
<tr><td></td><td>5</td><td>
<table>
<tr><th>colour of object</th><th>colour of light from spotlight</th><th>colour of light reflected</th></tr>
<tr><td rowspan="3">white</td><td>red</td><td>red</td></tr>
<tr><td>blue</td><td>blue</td></tr>
<tr><td>green</td><td>green</td></tr>
<tr><td rowspan="3">red</td><td>red</td><td>red</td></tr>
<tr><td>blue</td><td>black</td></tr>
<tr><td>green</td><td>black</td></tr>
<tr><td rowspan="3">blue</td><td>red</td><td>black</td></tr>
<tr><td>blue</td><td>blue</td></tr>
<tr><td>green</td><td>black</td></tr>
<tr><td rowspan="3">yellow</td><td>red</td><td>red</td></tr>
<tr><td>blue</td><td>black</td></tr>
<tr><td>green</td><td>green</td></tr>
</table>
</td><td>each correct answer = 1 mark

Accept no colour in place of black

Accept no light (ray) in place of black</td></tr>
<tr><td>Total</td><td>5</td><td colspan="2"></td></tr>
</table>

Question	8		
Part	**Mark**	**Answer**	**Further Information**
(a)	1	the result for 5 volts	**Accept** the idea of the result within the 27 to 29 paper clip range
(b)	1	(idea that) the paperclips were made from a non-magnetic material	**Accept** a named metal however do not award mark for metals or alloys that contain iron, cobalt or nickel
(c)	2		at least two correct field lines, no two field lines should touch = 1 mark direction arrow from north to south every time it is drawn = 1 mark **Ignore** straight lines that leave the ends of the iron bar
Total	**4**		

Question	9		
Part	**Mark**	**Answer**	**Further Information**
(a)	1	moves mucus	**Accept** wafts mucus **Accept** Traps / moves out foreign objects
(b)	1	paralyses (cilia) / stops (cilia) working	**Do not accept** kills (cilia)
(c)	1	nicotine	
Total	**3**		

Question	10		
Part	**Mark**	**Answer**	**Further Information**
(a)	2	 light travels in a straight line / correct straight line on the picture	if answer is not **B** = 0 marks **Accept B** if clearly shown in the picture
(b)	3		four correct = 3 marks two or three correct = 2 marks one correct = 1 mark **Accept** the arrow on either incident ray, reflected ray or on both providing no contradictions
Total	**5**		

Question	11		
Part	**Mark**	**Answer**	**Further Information**
	3	When she sits on the ball the mass of air inside it **stays the same**. When she sits on the ball the pressure inside it **increases**. When she sits on the ball the volume of air inside it **decreases**.	
Total	**3**		

Question	12		
Part	**Mark**	**Answer**	**Further Information**
(a)	1	diffusion	
(b)	1	particles have more (kinetic) energy / particles move faster	
Total	**2**		

Question	13		
Part	**Mark**	**Answer**	**Further Information**
(a)	2	no because **Any two from:** in dry air aluminium is slower than iron / aluminium has a lower number than iron in sea water aluminium is slower than iron / aluminium has a lower number than iron in acid rain aluminium is slower than iron / aluminium has a lower number than iron in distilled water aluminium is slower than iron / aluminium has a lower number than iron	no unqualified = 0 marks if yes = 0 marks
(b)	1	**all** the numbers are the same / **all** the corrosion speeds are the same	it is not sufficient to just identify three or fewer numbers to be the same
(c)	1	corrosion is faster in acid rain / numbers are larger in acid rain	**Accept** reverse argument answer must be comparative
(d)	2	**Any two from:** wear eye protection wear protective clothing e.g. lab coat wear gloves idea of acid not being too concentrated idea of having an acid neutraliser available e.g. sodium hydrogencarbonate put in a fume cupboard / hood	**Ignore** normal lab rules applicable for all experiments, the safety precautions must apply to the experiment in the question **Ignore** use of weak acid **Accept** alkali or base
Total	**6**		

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