



2010 Science

Standard Grade Credit

Finalised Marking Instructions

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2010 Science – Standard Grade

**Credit Level
Marking Scheme**

Please note that **FRACTIONAL** marks should **NOT** be awarded for responses to questions on this paper.

			Space for Notes
1	(a) Idea it is addictive	KU1	
	(b) Idea of prevents gas exchange/lung cancer/reduces/stops oxygen getting in (to blood)	KU1	<u>Not:</u> stops air getting in prevents self-cleaning mechanism blocks lungs/air sacs
	(c) Haemoglobin	KU1	
2	Idea that mucus traps dust/dirt etc Idea that cilia sweep dirty mucus 1 mark each	KU2	
3	(a) X	KU1	
	(b) Heron	KU1	

		Space for Notes												
<p>4 Any two from</p> <p>Repeat or repeat and average More ages/older/younger/wider age range More men/people Use women (as well) Measure over a longer time</p> <p style="text-align: right;">any two, 1 mark each</p>	<p>PS2</p>													
<p>5</p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%;">Good electrical conductivity</td> <td style="width: 50%;">allows heat to flow through it easily</td> </tr> <tr> <td>Good thermal conductivity</td> <td>allows an electric current to flow through it easily</td> </tr> <tr> <td>Hard</td> <td>can withstand damage to its surface caused by heat</td> </tr> <tr> <td>Strong</td> <td>can withstand damage to its surface caused by friction</td> </tr> <tr> <td>Heat resistant</td> <td>can withstand damage to its surface caused by impact</td> </tr> <tr> <td>Wear resistant</td> <td>can support a heavy load without breaking</td> </tr> </table> <p style="text-align: right;"> all 5 correct 3 marks 3, 4 correct 2 marks 1, 2 correct 1 mark </p>	Good electrical conductivity	allows heat to flow through it easily	Good thermal conductivity	allows an electric current to flow through it easily	Hard	can withstand damage to its surface caused by heat	Strong	can withstand damage to its surface caused by friction	Heat resistant	can withstand damage to its surface caused by impact	Wear resistant	can support a heavy load without breaking	<p>KU3</p>	
Good electrical conductivity	allows heat to flow through it easily													
Good thermal conductivity	allows an electric current to flow through it easily													
Hard	can withstand damage to its surface caused by heat													
Strong	can withstand damage to its surface caused by friction													
Heat resistant	can withstand damage to its surface caused by impact													
Wear resistant	can support a heavy load without breaking													

		Space for Notes	
6	<p>(a) To protect the <u>local</u> environment</p> <p>(b) Any two from</p> <p>Fold flat Easy to transport Reliable Simple to operate Can be recycled Uses heat/energy from the sun Idea of cleaning water</p> <p>(c) <u>Idea of traps heat</u> (absorbed by pot)</p> <p>(d) Kills (disease-causing) parasites</p>	<p>PS1</p> <p>PS1</p> <p>PS1</p> <p>PS1</p>	
7	<p>(a) Pie chart 1 <u>Idea of flowers</u> are closer together <u>and</u> bees journeys are shorter</p> <p>(b) 160.5 2 marks</p> <p>Correct total (963) 1 mark Wrong total divided correctly by 6 1 mark</p>	<p>PS1</p> <p>PS2</p>	<p>160 } rounding answer – 1 mark 161 }</p> <p>160:3 correct total – 1 mark</p>

			Space for Notes
(c)	<p>Any two from</p> <p>Movement or example</p> <p>Waste</p> <p>Respiration</p> <p>Heat</p> <p>Not eating all the animal/plant or example</p> <p>Reproduction</p> <p>Growth</p>	KU2	<u>Not</u> : feeding/death
8	<p>(a) Any two from</p> <p>As power (rating) increases, cross-section increases (or vice versa)</p> <p>As power rating increases, maximum safe current increases (or vice versa)</p> <p>As cross-section increases, maximum safe current increases (or vice versa)</p> <p style="text-align: right;">1 mark each</p>	PS2	<p>Power rating: <u>accept</u> power/wattage/watts <u>not</u>: W</p> <p>Maximum safe current: <u>accept</u> maximum current safe current <u>not</u>: current amps A</p> <p>Do not accept answers relating to fuse ratings</p>
(b)	(i) 1.25	PS1	
	(ii) 6	PS1	
(c)	3	KU1	

			Space for Notes
9	<p>(a) Any two from</p> <p>Loss of production Cost of replacement parts/repair Cost of protection Cost of labour</p> <p style="text-align: right;">1 mark each</p>	KU2	
	(b) Greasing or oiling or lubrication (or examples)	KU1	Apply cancelling errors Eg oiling and painting – 0 marks
	(c) Anodising	KU1	
	(d) Zinc	KU1	
10	<p>Ammonia Nitrogen monoxide Oxidising tower Nitrogen dioxide Water</p> <p style="text-align: right;">5 correct 2 marks 3/4 correct 1 mark 0/1/2 correct 0 marks</p>	PS2	

		Space for Notes
<p>11 (a)</p> <p>Aerial survey setting off small explosions and recording the echoes</p> <p>Geological survey boring holes so that rocks from underground can be studied</p> <p>Seismic survey collecting and examining different rocks from an area</p> <p>Test drilling taking photos from a satellite to produce a map</p> <p style="text-align: right;">All 4 correct 3 marks 2/3 correct 2 marks 1 correct 1 mark</p>	KU3	
<p>(b) (fractional) distillation</p>	KU1	<p>Fractioning/Fractionating/distilling/ Refining/Fractionising } Accept</p> <p>Not refinery</p>
<p>12 Any two from</p> <p>Strong</p> <p>Lightweight/light</p> <p>Corrosion resistant</p> <p>Wear-resistant/hard wearing/durable/durability</p> <p style="text-align: right;">1 mark each</p>	KU2	<u>Not</u> hard

			Space for Notes
13	(a)	200	KU1
	(b)	Longer	KU1
14	(a)	6 months	PS1
	(b)	95	PS1
	(c)	Sickness and headache	PS1
15	(a)	Idea of: As mass (hanging on spring) increases, the stretch increases (or vice versa) Idea of: As the width (of the spring) increases, the stretch decreases (or vice versa) 1 mark each	PS2
	(b)	1.7	PS1
	(c)	Any value between 2.4 and 5.5	PS1

				Space for Notes	
16	Cold and hot	both required	1 mark	KU2	
	Heated and steam	both required	1 mark		
17	(a)	A and C (both required)		KU1	
	(b)	Right atrium (auricle)		KU1	
	(c)	Has to pump blood all round the body/further		KU1	<u>Not</u> higher pressure
18	(a)	Capillary		KU1	
	(b)	Veins		KU1	
19	(a)	Fungi/fungus		KU1	Apply cancelling answer for fungus and hazel trees
	(b)	A (producers)		KU1	
	(c)	C (population)		KU1	
	(d)	More stable/other things for animals to eat etc		KU1	

		Space for Notes
20	(a) Idea of: The percentage drinking (more than the weekly limit) is higher in males (than females) (or vice versa) The percentage drinking (more than the weekly limit) decreases with age (or vice versa)	PS2
	(b) Label and scale on y-axis 1 mark Legend and labels (or key) on x-axis 1 mark Bars drawn correctly within $\frac{1}{2}$ small square 1 mark	PS3 Not tolerance of $\pm \frac{1}{2}$ square If only half the graph paper is used. Accept percentage or % in label
	(c) 26 units 2 marks 1 mark for correctly identifying 5 units of alcohol over limit	PS2
21	(a) 4 (carbon monoxide) (b) 3 (ozone) (c) 6 (sulphur dioxide)	KU1 KU1 KU1

				Space for Notes
22	(a) green			PS1
	(b) (leaves) yellow, (leaf) bases red, smaller (leaves) any two, 1 mark			PS1 Apply cancelling errors if information about roots and/or height is given
	(c) 4 (magnesium)			PS1
	(d) D			PS1
23	(a) 40 500 <u>20000</u> 500	2 marks 1 mark 1 mark		PS2 Accept correct answer from space for working Ignore transcription errors
	(b) 60 (1500 – 600) = 900 $\frac{900}{1500} \times 100$	2 marks 1 mark 1 mark		PS2 Accept correct answer from space for working Ignore transcription errors

				Space for Notes	
24	y-axis title	'mass' and unit (g)		PS3	Accept 'temp' for temperature
	and x-axis title/unit	'temperature' and unit (°C)	1 mark		
	y-axis	linear scale from 0 to 80			
	and x-axis	linear scale from 0 to 100	1 mark		
	allow transposed axes				
	All 6 points correct for each line and lines labelled or key		1 mark		Accept shortened labels eg pot chloride <u>Not</u> initials only
	allow +/-half box if scale is 1 box/1°C no tolerance if smaller scale is used				
Total				KU40 PS40	

[END OF MARKING INSTRUCTIONS]