



2011 Science

Standard Grade Credit

Finalised Marking Instructions

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2011 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)	<table border="1"> <tr> <td>Plasma</td> <td>Produce antibodies</td> </tr> <tr> <td>White blood cells</td> <td>Carry oxygen</td> </tr> <tr> <td>Platelets</td> <td>Carries dissolved food and carbon dioxide</td> </tr> <tr> <td>Red blood cells</td> <td>Seal cuts by clotting blood</td> </tr> </table> <p style="text-align: right;">All correct, 2 marks 1, 2 correct, 1 mark</p>	Plasma	Produce antibodies	White blood cells	Carry oxygen	Platelets	Carries dissolved food and carbon dioxide	Red blood cells	Seal cuts by clotting blood	KU2
	Plasma	Produce antibodies									
White blood cells	Carry oxygen										
Platelets	Carries dissolved food and carbon dioxide										
Red blood cells	Seal cuts by clotting blood										
(b)	(i)	Arteries	KU1								
	(ii)	Veins	KU1								

		Space for Notes
2	(a) Carbon monoxide	KU1
	(b) Hydrogen chloride	KU1
	(c) Hydrogen cyanide	KU1
3	<p>Any two from</p> <p>Leave for longer Repeat and/or average More/different metal (salt solutions) Higher voltage/increase power (supply) More concentrated solutions Larger volume of solution More accurate balance and/or timing</p> <p style="text-align: right;">Any two, 1 mark each</p>	<p>PS2</p> <p><u>Not:</u> Shorter time lower volume/voltage different voltage/time/volume</p> <p>Apply cancelling errors</p>
4	<p>Mash</p> <p>Hops <u>spent</u> barley</p> <p style="text-align: center;">Fermentation</p> <p style="text-align: right;">All correct, 2 marks 2, 3 correct, 1 mark</p>	PS2

			Space for Notes
5	(a) (i)	(Wooden) floor boards	KU1
	(ii)	(Leather) walking boots	KU1
	(b)	(Aluminium) window frame (Aluminium) garage door	KU1
6	(a)	Softens	PS1
	(b)	Cross-linked	PS1
	(c) (i)	Need (greater) strength	PS1 Idea of strength Ignore reference to heavy, corrosion resistant and dense. LDPE is tough and transparent. 'It is tougher and stronger' – apply cancelling errors.
	(ii)	Pigments	PS1

		Space for Notes
7	<p>(a) 160</p>	PS2 1 mark for correct substitution
	<p>(b) 107</p> <p>$110 + 103 + 98 + 109 + 115 = 535$</p> <p>$535/5 = 107$</p> <p>Correct total 1 mark Wrong total correctly divided by 5 1 mark</p> <p>103.(3) (all totalled and divided by 7) 1 mark working must be shown</p>	PS2
8	<p>Any two from</p> <p>The higher the temperature, the more water lost as sweat (and vice versa)</p> <p>The higher the temperature, the less water lost as urine (and vice versa)</p> <p>Temperature has no effect on water lost in exhaled air</p> <p>Temperature has no effect on water lost in faeces</p> <p>1 mark each</p>	PS2

					Space for Notes
9	(a)	Idea of When the temperature rises <u>too high</u> /to set temperature the thermostat <u>switches off</u> heating And When the temperature falls <u>too low</u> , the thermostat <u>switches on</u> heating Both required		KU1	
	(b)	3 The size of the garden outside his home		KU1	Apply cancelling errors
10	(a)	(i) 4 and 6	1 mark each	KU2	
		(ii) 1 and 2	1 mark each	KU2	
	(b)	Idea of: Scrubbing waste gases/using alternative fuels/ energy/more complete combustion		KU1	<u>Not</u> use less fuels, recycling
11		Lead (-210)		KU1	

			Space for Notes
12	(a) Idea of Sound waves/waves/vibrations/signals travel through rock layers Echoes/reflections/signals bounce back/are detected 1 mark each	KU2	
	(b) (Fractional) distillation	KU1	
13	(a) <u>Thermal</u> conductivity	KU1	Apply cancelling errors
	(b) Hardness	KU1	Apply cancelling errors
	(c) Flexibility	KU1	Apply cancelling errors
	(d) Strength	KU1	Apply cancelling errors

				Space for Notes	
14	(a)	(i)	<p>As depth of tyre tread increases, stopping distance decreases</p> <p>Maxgrip XT has a longer stopping distance than Surestop XP (for the same depth of tread)</p> <p>Maxgrip XT has a greater depth of tread than Surestop XP (for the same stopping distance)</p> <p>Any two, 1 mark each</p>	PS2	Not accepting reference to stopping quicker, better, faster, stronger, lighter.
		(ii)	10	PS1	
	(b)	(i)	5.3	PS1	
		(ii)	40	PS1	
15	<p>Cost of additional labour</p> <p>Cost due to lost production</p> <p>Both correct, 1 mark</p> <p>3 or more answers, 0 marks</p>			KU1	

				Space for Notes	
16	(a)	(i)	Coeliac (disease)	PS1	
		(ii)	Thai beef salad Tomato and feta tarts	PS1	
	(b)		Fig and apricot crunch	PS1	
	(c)		Any two from Bloating Nausea Abdominal pain	PS1	
	(d)		Vegetable tartlets Bean and green pepper salad Fig and apricot crunch All correct, 1 mark	PS1	

			Space for Notes
17	<p>(a) Any two from Rising sea levels Flooding Ice-caps melting Wetter summers/drought/colder winters/summers/loss of habitats/change in vegetation/climate change</p>	KU2	<p><u>Not</u> reference to temperature eg Temperature increases, it gets hotter. <u>Not</u> Weather change/bad weather. <u>Not</u> Reference to ozone layer.</p>
	(b) Hydrogen	PS1	
18	(a) 4 (windpipe)	KU1	
	(b) 1 and 2 (diaphragm and ribcage) 1 mark each	KU2	
	(c) 3 (air sacs)	KU1	
19	<p>(a) Label and linear scale from 0 on y-axis 1 mark Legend and labels (or key) on x-axis 1 mark Bars drawn correctly within ½ small square 1 mark</p>	PS3	
	(b) Loft (insulation)	PS1	

			Space for Notes
20	<p>(a) Idea of: As the concentration of pesticides increases in the egg, the thickness of the shell decreases/shell becomes weaker. eg The more pesticide the thinner the shell. The less pesticide the less chance the egg will break.</p>	PS1	
	(b) 80 parts per million	PS1	
	(c) 60 – 68 inclusive	PS1	
	<p>(d) No (0 marks on its own)</p> <p>Idea of The shell is thick enough not to break when the parent sits on it.</p>	PS1	
21	<p>(a) (i) B (ii) A (iii) C</p> <p>All correct, 2 marks 1, 2 correct, 1 mark</p>	KU2	
	(b) Idea of <u>trapped air</u> preventing heat loss	KU1	

		Space for Notes
22	<p>(a) Any two from</p> <p>As the number of carbon atoms increase, the boiling point increases</p> <p>As the number of hydrogen atoms increase, the boiling point increases</p> <p>As the number of carbon atoms increase, the energy given out increases</p> <p>As the number of hydrogen atoms increase, the energy given out increases</p> <p>Or both of</p> <p>As the size/length/number of atoms increases, the boiling point increases</p> <p>As the size/length/number of atoms increases, the energy given out increases</p> <p>1 mark each</p>	PS2
	<p>(b) 130°C – 145°C inclusive</p>	PS1

			Space for Notes
23	(a) Nicotine	KU1	
	(b) 75	PS1	
24	(a) idea of more stable/other things to eat/won't die out	KU1	Not more food
	(b) Decrease And Copepods are now the only source of food for dragonfly larvae	KU1	
	(c) (i) A algae	KU1	
	(ii) Bacteria/fungi/earthworms/any appropriate invertebrate	KU1	

				Space for Notes	
25	and	y-axis title x-axis title/unit	'Power output' and unit (W) 'Wind speed' and unit (km/h)	PS3	
					1 mark
	and	y-axis x-axis	linear scale from 0 to 8000 linear scale from 5 to 25		1 mark
	allow	transposed axes			
		All points accurate, joined continuously and lines labelled or key		1 mark	
	allow	+- half box if scale is 1 box/1mm			
			Total	KU40 PS40	

[END OF MARKING INSTRUCTIONS]