



2010 Science

Standard Grade General

Finalised Marking Instructions

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2010 Science – Standard Grade

General Level

Marking Scheme

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

Please note that where a question specifies circling or underlining, other forms of clearly indicating a response are acceptable.

		Space for Notes
1	<p>(a) Bubonic plague is spread by fleas (brucellosis is spread by cattle)</p> <p>Accept spread in different ways/methods/animals</p>	<p>PS1</p> <p>Not 'one is spread by fleas' alone Ignore spelling eg 'flies'</p>
	<p>(b) (infectious disease) incubation period 1 to 3 days spread by airborne droplets caused by a bacterium/bacteria</p> <p>all 3 correct, 2 marks 2 correct, 1 mark</p>	<p>PS2</p> <p>Full answers as shown</p>
2	<p>(a) X – vein Y – capillary Z – artery</p> <p>1 mark each</p>	<p>KU3</p>
3	<p>(a) B (Joules)</p>	<p>KU1</p>
	<p>(b) C (5 kW oven used for 3 hours)</p>	<p>KU1</p>

					Space for Notes
4	(a)	Metals Or Conductors	Non-metals Insulators both required	KU1	Metals/– Metals/Materials zero zero
	(b)	Metal Wood Plastic Cloth/Fabric	any three	KU1	Not named examples of any type of material eg steel, aluminium, cotton
	(c)	(i)	4 (wear resistant)	KU1	} KU 2 in script
		(ii)	1 (strong)	KU1	
5	(a)	C (heat)		KU1	
	(b)	B (steam)		KU1	
	(c)	Deep underground Or For a long time		KU1	Accept ‘for hundreds of years’ as long time (or longer)

		Space for Notes
6	<p>(a) Blind and helpless</p>	PS1 Accept correct additional info eg small, hatch quickly (line 2)
	<p>(b) More food is stored (for the developing chick)</p> <p>Or</p> <p>So the chick can be more developed</p>	PS1 Accept correct additional info eg covered in down, can soon run about (line 5)
	<p>(c) Eggs take up <u>less space</u>, <u>nest is small</u>, parents can easily <u>keep eggs warm</u></p> <p>Three correct, 2 marks two correct, 1 mark one correct, 0 marks</p>	PS2 Take up less room (not 'more room for eggs') Small nest
	<p>(d) Either (To help) growing bones (in the chick)</p> <p>Or</p> <p>(Mother (eats shell to) replace (her)) calcium</p>	PS1 Idea of for growing bones or to replace calcium
7	<p>(a) Any two from</p> <p>Red (blood) cells Plasma Platelets</p> <p>1 mark each</p>	KU2 Not 'red blood' 'plates'
	<p>(b) Produce antibodies Or Engulf and/or digest (eat) them</p>	KU1

		Space for Notes
8	<div> <div> Water Warmth Food Shelter </div> <div> clearing land to build houses building a reservoir near a river building wind generators on moor land ploughing land to grow crops </div> </div> <p style="text-align: right;">All 3 correct, 2 marks 1, 2 correct, 1 mark</p>	KU2
9	(a) Tungsten	KU1
	(b) Chromium and nickel	KU1
	(c) Harder	KU1
10	10% <div style="text-align: right;">correct answer, 2 marks</div> $2.5/25 \times 100$ to give wrong answer, 1 mark	PS2

			Space for Notes
11	(a) Four chains with arrows up 3 marks Four chains with links or arrows down 2 marks Three chains with arrows up 2 marks Three chains with links or arrows down 1 mark Two chains with arrows up 1 mark	PS3	Incorrect links: tadpole → leech, leech → eel Waterflea → leech, midge larvae → stickleback Deduct max of 1 mark for ‘extra’ links
	(b) Increases	KU1	
	(c) Decreases	KU1	Accept ‘10% lost at each stage’
	(d) Light	KU1	
12	(a) Japan	PS1	Accept name of bridge <u>and</u> Japan (not name alone)
	(b) 1000	PS1	Not 2529
	(c) 1149	PS1	
	(d) As (total) length increases, span increases Or Length is greater than span and vice versa	PS1	Not: suspension bridges have the longest span and length or other answers about types of bridges

					Space for Notes
13	(a)	1 (polyvinyl chloride (PVC))		KU1	
	(b)	4 (polyurethane)		KU1	
14	(a)	Full Labels on x-axis including legend	1 mark	PS3	Accept horizontal bar graph Percentage or % heat lost/loss for y-label Scale must start at zero, labelled or not Tolerance only for 0-50 scale Not ‘w+f’ for walls + floors
		Labels and scale on y-axis	1 mark		
		Bars (+/- ½ small square)	1 mark		
	(b)	2500		PS1	
15	(a)	Strength (power)		KU1	
	(b)	Suppleness (flexibility)		KU1	Not bendiness, agility

					Space for Notes
16	(a)	Anticline Oil	1 mark each	KU2	
	(b)	Any two from Carbon monoxide/CO/Co Carbon dioxide/CO ₂ /CO ² Sulphur dioxide/SO ₂ /Sulphur oxide Water (vapour)/steam Carbon/soot	1 mark each	KU2	Not smoke nitrogen(di)oxide NO ₂ ash charcoal
17	Diamond	Country	Weight (in) carats	PS3	Accept only given headings/unit one error/omission in units S. Africa, 105·6 and 530·2
	Kohinoor (diamond)	India	105.60		
	Millenium Star (diamond)	Congo	203.04		
	Centenary (diamond)	South Africa	273.85		
	Cullinan (diamond)	South Africa	530.20		
	Headings	(Diamond must be first heading)	1 mark		Do not accept " " marks for S. Africa data without headings millennium (only) star (only) c (for carat)
	12 correct entries including unit (in heading or entry)		2 marks		
	8,9,10,11 correct entries		1 mark		

		Space for Notes
18	Hypothermia	KU1 Accept variations in spelling eg hyperthermia
19	132 any two correct operations out of three with working, 1 mark (as list) eg 90 + 42 = wrong total, 1 mark	PS2 45 × 2 = 90 14 × 3 = 43 90 × 42 = incorrect answer 90 + incorrect = correct total 42 + incorrect = correct total 118 (2,2) 163 (3,2) 177 (3,3) looking for working
20	(a) <div><div>gasoline</div><div>paraffin</div><div>bitumen</div><div>diesel</div><div>naphtha</div></div> <div><div>aviation fuel</div><div>plastics</div><div>fuels for cars</div><div>road surfaces</div><div>fuel for lorries</div></div> <div>all 4 correct, 3 marks 2, 3 correct, 2 marks 1 correct, 1 mark</div>	KU3
(b) Bitumen		KU1

			Space for Notes
21	(a) 31 correct answer 2 marks wrong total correctly divided by 5 1 mark correct total incorrectly divided by 5 1 mark	PS2	Do not accept <u>wrong</u> total <u>incorrectly</u> divided by 5
	(b) C (Starch)	KU1	
22	(a) A and E	PS1	
	(b) Idea of: mass/weight/size/grams of dart	PS1	<u>Or</u> how hard the wood(en tile) is <u>Not</u> the strength of the wooden tiles (alone)
23	(a) Idea of: The older the person the lower the limit/heart rate/safe exercise zone, 1 mark The unfit person has a lower limit/heart rate/safe exercise zone, 1 mark and vice versa	PS2	Do not accept restatement(s) of specific data
	(b) 140	PS1	
	(c) 30 (years)	PS1	

					Space for Notes
24	(a)	Idea of: As volume of water increases, the energy increases As temperature of water increases, the energy increases and vice versa	1 mark 1 mark	PS2	Accept – litres for volume, hotter for temperature, MJ for energy – 200ℓ uses more/double the energy (than 100ℓ) Do not accept – “units” for energy – conclusions which are not about energy
	(b)	Any answer between 33.4 and 37.6		PS1	
25	(a)	Decrease		KU1	
	(b)	Stay the same		KU1	
	(c)	Increase		KU1	
26		Labels on x - axis Linear Scales on both axes All Points plotted and joined	Distance from city (centre) km 1 mark 1 mark 1 mark	PS3	Max for bar graph = 1 mark (for x - axis) Non-linear scale(s) = 1 mark (for x - axis) Accept scale(s) without zero marked
			Totals	KU 40 PS 40	

[END OF MARKING INSTRUCTIONS]