2011 Science

Standard Grade General

Finalised Marking Instructions

2011 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	**(a)**	Laptop (battery)	**PS1**	
	(b)	Not rechargeable, button shape, silver oxide All correct, 2 marks 2 correct, 1 mark	**PS2**	Cancelling errors
2		D (ceramic, glass, metal)	**KU1**	Cancelling errors
3	**(a)**	2 (artery)	**KU1**	
	(b)	1 (valve)	**KU1**	
	(c)	4 (capillary)	**KU1**	
	(d)	3 (white blood cell)	**KU1**	

				Space for Notes
4	**(a)**	2500 (W)	**KU1**	Cancelling errors eg 2500W, 230V
	(b)	C (The period of time that the heater is switched on)	**KU1**	Cancelling errors
5		(Dead) sea creatures 1 mark Idea of: Crushed/pressure/heat/bacteria 1 mark Millions of years 1 mark	**KU3**	Accept animals (and plants) Not plants Must include "sea" somewhere in answer OR clearly indicate a marine animal eg fish, plankton
6	**(a)**	(an infected person) coughing and sneezing	**PS1**	both required
	(b)	(Between) one and three days, 1 – 3 days	**PS1**	
	(c)	Fever, headaches, aching muscles (ignore reference to coughing, sneezing, starts to feel unwell)	**PS1**	All three required
	(d)	Elderly, (people with) chronic heart (or) lung disease	**PS1**	All information required
	(e)	Virus (continually) changes	**PS1**	

						Space for Notes
7	**(a)**	**(i)**	Decreases		**KU1**	
		(ii)	More		**KU1**	
	(b)	**(i)**	Lichen (canary)		**KU1**	Not: fungus, moss birds
		(ii)	Asthma, bronchitis,	TB, local description eg farmers lung emphysema	**KU1**	Not: other named cancers (eg throat cancer), flu, chest infection, heart disease
8		28		2 marks	**PS2**	
		Wrong total correctly divided by 5		1 mark		
		Correct total (140)		1 mark		
9		Heading and units		1 mark	**PS3**	Units in headings <u>OR</u> in at least 3 of 4 data "Type of coal" must be first Accept: "Coal types", "Name of coal", "Coal" Accept: "Type" <u>IF</u> all data includes "coal" eg anthracite <u>coal</u> Both other headings must be in full – "Moisture content %", "Heat output kW/kg" Missing heading – discount all data in that column
		12 correct pieces of data		2 marks		
		8-11 correct pieces of data		1 mark		
		-1 mark if coal not first heading -1 mark if no units				

				Space for Notes
10	**(a)**	Four chains with arrows 3 marks Four chains with links 2 marks Three chains with arrows 2 marks Three chains with links 1 mark Two chains with arrows 1 mark Ignore additional arrow from seaweed to winkle Additional incorrect arrow -1 mark per arrow up to maximum of 3	**PS3**	Note: Seaweed → winkle → crab → octopus will appear as an "extra" chain Note: If chain 3 is omitted, answer will appear as 2 webs – still gets 2 marks (max)
	(b)	Increase (idea of)	**KU1**	
	(c)	Decrease (idea of)	**KU1**	
	(d)	Predators (sea otters), (competition for) space, disease, build up of waste, climate change, loss of habitat	**KU1**	Not food, prey, winkles, oxygen content of water Accept: weather, warmth, temperature, flow rate, pH of water, depth of water, shelter, moisture Not: hunting, birth/death/age, pollution, population, competition (on its own), water (on its own), environment, oxygen (on its own)
	(e)	Light Starch 1 mark each	**KU2**	

				Space for Notes
11	**(a)**	Galvanising	**KU1**	
	(b)	Crimping	**KU1**	
	(c)	Corrosion	**KU1**	
12		Full labels on *x*-axis including legend (or key) 1 mark scale on *y*-axis, linear from zero 1 mark All bars (+-½ small square) 1 mark	**PS3**	A correct bar must have correct height and label Tolerance applies only if scale uses full graph paper
13		Strength Idea of sustained exercise Gymnastics (or similar) Yoga, stretching, sit + reach test 1 mark each	**KU3**	Stamina: idea of exercise for a long time, keep going, not tiring, not stopping Not: running a long way/distance Not: bending, exercise

					Space for Notes
14	**(a)**	**(i)**	Robber fly	**PS1**	
		(ii)	Black fly	**PS1**	
	(b)	**(i)**	Robber fly	**PS1**	Not: bee
		(ii)	Idea of learning the stripes/bee will sting eg “thinks it’s a bee”, “doesn’t like stripes”, “scared of stripes”	**PS1**	Cannot gain this mark if b (i) is incorrect
15	**(a)**		Hydrogen chloride	**KU1**	
	(b)		Hydrogen cyanide	**KU1**	
16	**(a)**	**(i)**	B	**KU1**	
		(ii)	(natural) gas	**KU1**	
	(b)		Fault (trap)	**KU1**	

						Space for Notes
17			170 2 marks Correct working but wrong total 1 mark		**PS2**	Working: 6 × 25 and 4 × 5 1 mark 150 and 20 1 mark
18	**(a)**		Food		**KU1**	
	(b)		Water		**KU1**	
19	**(a)**	**(i)**	Bitumen		**KU1**	
		(ii)	Naphtha		**KU1**	
	(b)		B Paraffin is less flammable than petrol		**KU1**	Cancelling errors
20	**(a)**		A and C		**PS1**	
	(b)		If type of leaf/shape of leaf/type of plant (affects how quickly water evaporates from a leaf)		**PS1**	Accept: different leaves/plants Not: What leaf works best Which leaf evaporates most (ie vague answers) (leaf or plant) Ignore: references to dark and/or windy conditions

					Space for Notes
21	**(a)**	B or ribs or ribcage		**PS1**	
	(b)	D or diaphragm		**PS1**	
22	**(a)**	As temperature decreases, rate of ammonia production increases and vice versa As pressure increases, rate of ammonia production increases and vice versa		**PS2**	Accept: rate or ammonia or production increases Accept: ºC for temperature bars for pressure Not: temp/pressure conclusion(s)
	(b)	Any value **between** 140 and 270		**PS1**	
23	**(a)**	35% 100 – 65 = wrong answer 100 – wrong total	2 marks 1 mark 1 mark	**PS2**	Not: adding up to 65% on its own, must show some idea of subtracting from 100 as well
	(b)	750		**PS1**	

				Space for Notes
24		Poor thermal conductivity Good wear resistance	**KU2**	
25		(C) B A D	**PS1**	
26	**(a)**	Alloy	**KU1**	
	(b) **(i)**	Any two from • As temperature increases, the energy (needed to heat the solder) increases (or vice versa) • As % of tin increases, the energy (needed to heat the solder) increases (or vice versa) • As % of lead decreases, the energy (needed to heat the solder) increases (or vice versa) • (For a certain increase in temperature), 60% tin/40% lead need more energy (or vice versa) or the more tin, the more energy • As % tin decreases, the temperature increases (for the same energy supplied) • As % lead increases, the temperature increases (for the same energy supplied) 1 mark each	**PS2**	Accept: kJ for energy Not: The more tin, the less lead Tin needs more energy than lead "Heat" for energy or temperature
	(ii)	Any value **between** 2.0 and 2.7	**PS1**	

				Space for Notes
27	Label on y-axis + unit Scales on both axes Points plotted and joined	1 mark 1 mark 1 mark	**PS3**	y-axis: Full label and unit as in table scaled: linear, from zero points + line: all correct ± ½ sq only if full scale must be joined to (0,0) bar chart: 1 mark max for y-axis label and unit Accept one zero value entered on scale(s) at origin

[END OF MARKING INSTRUCTIONS]