2013 Science

Standard Grade Credit

Finalised Marking Instructions

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Part One: General Marking Principles for Science Standard Grade Credit

This information is provided to help you understand the general principles you must apply when marking candidate responses to questions in this Paper. These principles must be read in conjunction with the specific Marking Instructions for each question.

(a) Marks for each candidate response must always be assigned in line with these general marking principles and the specific Marking Instructions for the relevant question. If a specific candidate response does not seem to be covered by either the principles or detailed Marking Instructions, and you are uncertain how to assess it, you must seek guidance from your Team Leader/Principal Assessor.

(b) Marking should always be positive ie, marks should be awarded for what is correct and not deducted for errors or omissions.

GENERAL MARKING ADVICE: Science Standard Grade Credit

The marking schemes are written to assist in determining the "minimal acceptable answer" rather than listing every possible correct and incorrect answer. The following notes are offered to support Markers in making judgements on candidates' evidence, and apply to marking both end of unit assessments and course assessments.

Marking

The utmost care must be taken when entering and totalling marks. Where appropriate, all summations for totals must be carefully checked and confirmed.

Where a candidate has scored zero marks for any question attempted, "0" should be entered against the answer.

Recording of Marks

Where papers assess more than one element, care must be taken to ensure that marks are entered in the correct column.

The **Total** mark for each paper or element should be entered (in red ink) in the box provided in the top-right corner of the front cover of the answer book (or question/answer book).

Always enter the **Total** mark as a **whole number**, where necessary by the process of rounding up.

The transcription of marks, within booklets and to the Mark Sheet, should always be checked

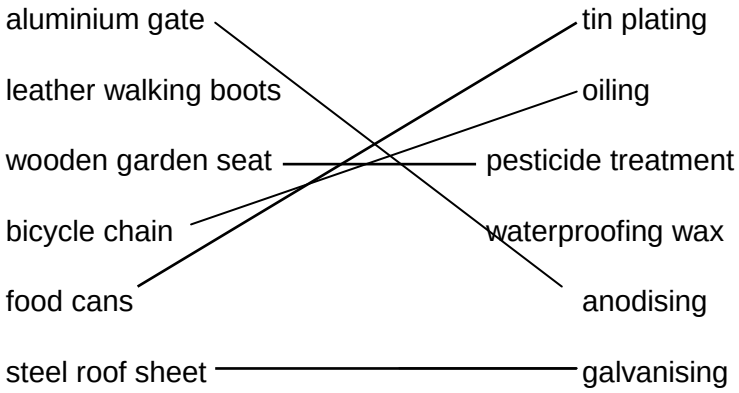
Markers are reminded that they must not write comments on scripts – comments include words or acronyms.

Ticks, crosses, lines and numbers are acceptable.

Part Two: Marking Instructions for each Question

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

				Space for Notes
1	**a**	B and D **Both required**	**KU1**	
1	**b**	Right atrium (auricle)	**KU1**	
1	**c**	Idea that D has to pump blood to the (whole) body/further/at higher pressure/with more force (B has only to pump blood to the lungs/not so far/less pressure/less force)	**KU1**	Ignore any error in naming part D
2		Any **two** from • Repeat and/or average • More (numbers of) coils/wire • Higher voltage/current/power/more electricity • Thicker/thinner wire • Change material of wire • Length/size of nail/more nails • Nail replaced by different metals/materials • Use idea of smaller/lighter paperclips **1 mark each**	**PS2**	**Not** • Replace any piece of equipment • More paper clips • Different objects to lift • Change the gap **Accept** • Change the voltage/power/current

				Space for Notes
3	**a**	3 and 4 **1 mark each**	**KU2**	
3	**b**	5	**KU1**	
3	**c**	1	**KU1**	
4		 **5 correct, 3 marks** **3,4 correct, 2 marks** **1,2 correct, 1 mark**	**KU3**	

			Space for Notes
5	Full label(**distance from the Sun**), unit (**millions of km**) and linear scale (**0 – 160**) on y-axis **1 mark** Legend (**planet**) **and** labels/key (**Mercury, Venus, Earth)** on x-axis **or** Legend (**planet**) **and** labels/key (**minimum, maximum**) on x-axis **1 mark** Bars drawn correctly no tolerance **and** label/key (**minimum, maximum**) or (**Mercury, Venus, Earth)** **1 mark**		**<u>Accept</u>** • Min for minimum • Max for maximum • superimposed bars **<u>Not</u>** • Stacked bars **<u>Line graph</u>** • maximum 1 mark for y-axis label, unit, linear scale
6	Any **two** from • Scrubbing/treating waste gases/using filters • Complete combustion/more efficient boilers • Removing impurities from coal/fuel - or **one** example • Use alternative/renewable fuels – or **one** named example • Eco-friendly transport/less cars/car share/ use public transport – or **one** example **1 mark each**	**KU2**	**<u>Not</u>** • Recycling • Use less/different fossil fuels (without an alternative) • Higher chimneys • Less factories • Plant trees

				Space for Notes
7		Idea of: When the temperature is too low, the thermostat switches freezer **off** **and** When the temperature is too high, the thermostat switches freezer **on** **Both required**	**KU1**	**<u>Accept</u>** Answers relating to other appliances e.g. When the temperature is too high, the thermostat switches appliance **off** **and** When the temperature is too low, the thermostat switches appliance **on**
8	**a**	Vibrios	**PS1**	Correct answer only
8	**b**	Binary fission	**PS1**	Correct answer only
8	**c**	**<u>Most</u>** bacteria are killed	**PS1**	
8	**d**	Antibiotics Bacteriophages **Any order, both required**	**PS1**	Correct answers only **<u>Not</u>** • 'Drugs' only • 'Viruses' only

					Space for Notes
9	**a**	4		**KU1**	
9	**b**	3 and 6	**Any order**	**KU1**	
9	**c**	1		**KU1**	
10		A		**KU1**	

				Space for notes
11	**a**	A More **Both required**	**KU1**	
11	**b**	Any **two** from Movement, waste, heat, respiration, reproduction, growth, some parts of the organism are not eaten **1 mark each**	**KU2**	**<u>Accept</u>** One example of each e.g. running for movement **<u>Not</u>** • Eating • Sleeping • Hunting
11	**c**	D (wedge–tailed eagle)	**KU1**	Correct answer only
11	**d**	Population	**KU1**	Correct answer only

				Space for Notes
12	**a**	*Scleroderma citrinum*	**PS1**	**<u>Accept</u>** common name **<u>and</u>** species
12	**b**	Purple	**PS1**	
12	**c**	• Common name destroying angel • Diameter 5-9 (cm) • Brown cap • Causes death if eaten **4 correct, 2 marks** **2/3 correct, 1 mark**	**PS2**	
13	**a**	Any **two** from Food supply, water supply, space, shelter, disease, predators, build up of waste, migration, natural disasters, climate <u>change</u> **1 mark each**	**KU2**	**<u>Not</u>** • pH • temperature • loss of habitat unless qualified • pollution • hunting/poaching/other human activity • weather unless qualified • loss of trees/forest (given)
13	**b**	habitat	**KU1**	

						Space for Notes
14	**a**	**<u>Part of the blood</u>**		**<u>Function</u>**	**KU3**	
		plasma		to destroy bacteria		
		white blood cells		to carry oxygen		
		platelets		to carry dissolved food		
		red blood cells		to seal cuts by clotting blood		
				4 correct, 3 marks **2,3 correct, 2 marks** **1 correct, 1 mark**		
14	**b**	**i**	Arteries		**KU1**	
14	**b**	**ii**	Veins		**KU1**	

					Space for Notes
15	**a**		As temperature (of water) increases, the (level of dissolved) oxygen decreases (or vice versa)	**PS1**	**Not** Answers relating to speed of dissolving **Accept** 'Heat' for temperature 'Temp.' for temperature
15	**b**	**i**	3	**PS1**	**Accept** Three correct names i.e. perch, roach, tench
15	**b**	**ii**	1·5	**PS1**	
15	**c**	**i**	6	**PS1**	**Not** 16
15	**c**	**ii**	trout	**PS1**	Correct answer only

			Space for notes
16	y-axis title and scale ‘Number of twin births per 1000 pregnancies’ **and** linear scale from 2 to 16 **1 mark** **Identical (twins)**: all points correctly plotted for **and** joined **and** line labelled or key **1 mark** **Non-identical (twins)**: all points correctly plotted for **and** joined **and** line labelled or key **1 mark**	**PS3**	If there is no y-axis label – maximum 2 marks

					Space for Notes
17	**a**		Fermentation/fermenting	**KU1**	**<u>Accept</u>** • anaerobic respiration
17	**b**		Seismic (survey)	**KU1**	
17	**c**		(fractional) distillation	**KU1**	**<u>Accept</u>** • Distilling **<u>Not</u>** • Fractionating • Refining • Refinery • Separation
18	**a**	1	(thermal conductivity)	**KU1**	
18	**b**	6	(hardness)	**KU1**	
18	**c**	4	(flexibility)	**KU1**	
18	**d**	2	(strength)	**KU1**	

				Space for Notes
19	**a**	moderate	**PS1**	
19	**b**	Andrew	**PS1**	
19	**c**	Any value from 955 to 980 **inclusive**	**PS1**	
20	**a**	B	**KU1**	
20	**b**	13A	**KU1**	
20	**c**	Idea of: The earth wire provides a (conducting) path (from toaster) to earth/ground **OR** A (large) current in the earth wire causes the fuse to melt/blow, (stopping the current)	**KU1**	

				Space for Notes
21	**a**	As age increases, thickness of skin decreases (or vice versa) Smoker has thinner skin than non-smoker (or vice versa) **1 mark each**	**PS2**	**<u>Not</u>** References to better skin
21	**b**	1·45 – 1·05 = 0·4 correct answer **2 marks** correct values from graph **1 mark** correct subtraction for wrong values (working shown) **1 mark**	**PS2**	

				Space for Notes
22	**a**	40	**PS1**	
22	**bi**	2·5	**PS1**	
22	**bii**	125 correct answer **2 marks** correct rearrangement of words: average **time** taken = **distance** travelled average water **speed** **or** figures: = $\frac{100}{0.8}$ **1 mark**	**PS2**	

			Space for notes
23	Methane 200 unreacted iron **liquid** ammonia **5 correct 3 marks** **3,4 correct 2 marks** **2 correct 1 mark**	**PS3**	

				Space for notes
24	**a**	Any **two** from • the higher the temperature, the lower the solubility (or vice versa) • the higher pressure, the higher the solubility (or vice versa) • the effect of temperature on solubility is greatest at 1 atm (or vice versa) **1 mark each**	**PS2**	**<u>Not</u>** Answers linking temperature and pressure
24	**b**	any value **between** 300 and 365	**PS1**	
24	**c**	25 **2 marks** 80/320×100 **1 mark** 320-240 =80 **1 mark** (working must be shown (incorrect value)/320x100 **1 mark**	**PS2**	
			KU40 **PS40**	

[END OF MARKING INSTRUCTIONS]