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Mark Scheme (Results)

Summer 2013

PLSC Science (LSC01/01)
Edexcel International
Lower Secondary Curriculum

Year 9 Achievement Test

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General Marking Guidance

- All candidates must receive the same treatment. Examiners must mark the first candidate in exactly the same way as they mark the last.
- Mark schemes should be applied positively. Candidates must be rewarded for what they have shown they can do rather than penalised for omissions.
- Examiners should mark according to the mark scheme not according to their perception of where the grade boundaries may lie.
- There is no ceiling on achievement. All marks on the mark scheme should be used appropriately.
- All the marks on the mark scheme are designed to be awarded. Examiners should always award full marks if deserved, i.e. if the answer matches the mark scheme. Examiners should also be prepared to award zero marks if the candidate's response is not worthy of credit according to the mark scheme.
- Where some judgement is required, mark schemes will provide the principles by which marks will be awarded and exemplification may be limited.
- When examiners are in doubt regarding the application of the mark scheme to a candidate's response, the team leader must be consulted.
- Crossed out work should be marked UNLESS the candidate has replaced it with an alternative response.

SECTION A

Question Number	Answer	Mark
1	B	**1**
2	D	**1**
3	B	**1**
4	D	**1**
5	C	**1**
6	B	**1**
7	A	**1**
8	C	**1**
9	B	**1**
10	A	**1**

Question	Acceptable answers	Additional guidance	Mark
11(a)	carbon dioxide + water ⟶ glucose + oxygen Water and glucose needed for 1 mark	Accept sugar instead of glucose Ignore starch	**1**

Question	Acceptable answers	Additional guidance	Mark
11(b)	M1 (At start) as levels of CO_2 increase so does the rate (of photosynthesis) **(1)** M2 (At higher levels of CO_2) there is no increase in the rate of photosynthesis **(1)**	M1 is for reference to first part of curve Accept: At low levels of CO_2 low rate (of photosynthesis) **(1)** M2 is for reference to horizontal part of curve Accept: Idea of plateau/levelling off / no further increase **(1)**	**2**

Question	Acceptable answers	Additional guidance	Mark
11(c)	more carbon dioxide is needed to increase photosynthesis/produce more tomatoes (up to a point then it has no effect) **(1)** OR farmer would know how much carbon dioxide needed/to add to greenhouse (to grow more/most tomatoes) **(1)**	 Accept idea of preventing carbon dioxide being a limiting factor Accept idea of providing plants with more carbon dioxide (to grow more)	**1**

Total for Question 11 = 4 Marks

Question	Acceptable answers	Additional guidance	Mark
12(a)	Neutralisation	Accept Acid-base (reaction)	**1**

Question	Acceptable answers	Additional guidance	Mark
12(b)	So that all the acid has reacted / used up / neutralised		**1**

Question	Acceptable answers	Additional guidance	Mark
12(c)	Copper oxide + sulfuric acid **(1)** Copper sulfate + water **(1)**	1 mark for reactants Accept H_2SO_4 + CuO and 1 mark for products Accept $CuSO_4$ and H_2O If use formulae ignore attempts at balancing Accept sulphuric / sulphate	**2**

Total for Question 12 = 4 Marks

Question	Acceptable answers	Additional guidance	Mark
13(a)	Pivot / fulcrum		**1**

Question	Acceptable answers	Additional guidance	Mark
13(b)	Make the lever / it longer (keep the pivot in same place) **(1)** OR Put the rock closer to the pivot / fulcrum (keep the same size lever) **(1)**	Push down further away from the pivot	**1**

Question	Acceptable answers	Additional guidance	Mark
13(c)	50 x 0.7 **(1)** = 35 (Nm) **(1)**	Correct answer no working scores 2 marks	**2**

Total for Question 13 = 4 Marks

Question	Acceptable answers	Additional guidance	Mark
14(a)	To reduce the effect of air resistance / to reduce the drag (force) / to make it streamlined / aerodynamic	Accept idea of allowing it to cut through air (easily)	**1**

Question	Acceptable answers	Additional guidance	Mark
14(b)	speed = 896 ÷ 3.5 **(1)** = 256 (km/h) **(1)**	Correct answer no working scores 2 marks	**2**
		Total for question 14	**3**

Total for Question 14 = 3 Marks

Question Number	Answer	Mark
15	**C**	**1**
16	**D**	**1**
17	**C**	**1**
18	**A**	**1**
19	**B**	**1**
20	**B**	**1**
21	**D**	**1**
22	**C**	**1**
23	**D**	**1**
24	**B**	**1**

Question	Acceptable answers	Additional guidance	Mark
25(a)	**Any two from:** Because beetles / they eat the greenfly **(1)** Which eat the wheat **(1)** So less wheat is eaten **(1)**		**2**

Question	Acceptable answers	Additional guidance	Mark
25(b)	There will be fewer beetles/fewer skylarks **(1)** (So) fewer kestrels **(1)** OR Pesticides could accumulate in the food chain / pesticides could poison kestrel / pesticides could kill kestrel **(1)** (So) fewer kestrels **(1)**	Allow no beetles / skylarks Allow beetles / skylarks die Allow no kestrels	**2**

Total for Question 25 = 4 Marks

Question	Acceptable answers	Additional guidance	Mark
26(a)	Respiratory (system)	Ignore lungs Reject respiration	**1**

Question	Acceptable answers	Additional guidance	Mark
26(b)	Breathlessness / shortness of breath / wheezing / coughing / tiredness	Any comment relating to the person struggling to breathe /breathing problems	**1**

Total for Question 26 = 2 Marks

Question	Acceptable answers	Additional guidance	Mark
27(a)	Magnesium Oxygen	Both needed for the mark Ignore symbols	**1**

Question	Acceptable answers	Additional guidance	Mark
27(b)	Salt Water	If more than two circled then 0 mark	**1**

Question	Acceptable answers	Additional guidance	Mark
27(c)	$MgO + \mathbf{2}HCl \longrightarrow MgCl_2 + H_2O$	Accept any multiple of complete equation	**1**

Question	Acceptable answers	Additional guidance	Mark
27(d)(i)	**In any order:** (Damages / attacks/reacts with) <u>limestone / marble</u> statues / buildings **(1)** Harmful to river / pond /aquatic life **(1)** Harmful to / damages trees / crops / plants **(1)**	Ignore harmful to human health/skin	**2**

Question	Acceptable answers	Additional guidance	Mark
27(d)(ii)	6		**1**

Total for Question 27 = 6 Marks

Question	Acceptable answers	Additional guidance	Mark
28a	Electrical	Accept electricity / electric	**1**

Question	Acceptable answers	Additional guidance	Mark
28b	Heat / thermal		**1**

Question	Acceptable answers	Additional guidance	Mark
28c	20 (J)		**1**

Total for Question 28 = 3 Marks

Question Number	Answer	Mark
29	**A**	**1**
30	**A**	**1**
31	**D**	**1**
32	**C**	**1**
33	**C**	**1**
34	**D**	**1**
35	**C**	**1**
36	**D**	**1**
37	**B**	**1**
38	**D**	**1**

SECTION B

Question	Acceptable answers	Additional guidance	Mark
39(a)	The length increases /extension increases /spring gets longer	Accept spring moves downwards Ignore reference to size	**1**

Question	Acceptable answers	Additional guidance	Mark
39(b)	Any one / two correct for 1 mark Three correct for 2 marks 12 16 20		**2**

Question	Acceptable answers	Additional guidance	Mark
39(c)	**Any one from:** (Textbook) spring is made from a different material **(1)** (Textbook) spring is made from aluminium **(1)** (Textbook) spring is not made from steel **(1)** Extensions of aluminium differ (from steel) **(1)**	Accept reverse argument	**1**

Total for Question 29 = 4 Marks

Question	Acceptable answers	Additional guidance	Mark
40(a)(i)	Copper		**1**

Question	Acceptable answers	Additional guidance	Mark
40(a)(ii)	Magnesium		**1**

Question	Acceptable answers	Additional guidance	Mark
40(b)	Goggles	Accept safety glasses Accept eye/face shield Ignore eye protection Ignore (face) mask	**1**

Question	Acceptable answers	Additional guidance	Mark
40(c)(i)	Silver is the least reactive OR Silver is as unreactive as / less reactive than copper	Ignore " (very) unreactive"	**1**

Question	Acceptable answers	Additional guidance	Mark
40(c)(ii)	Because silver did not react at all / it did not displace any other metal	Accept silver did not get coated with another metal	**1**

Total for Question 40 = 5 Marks

Question	Acceptable answers	Additional guidance	Mark
41(a)	Appropriate scales **(1)** 8 or 9 points plotted correctly **(2)** 6 or 7 points plotted correctly **(1)** Curve drawn **(1)**	use of at least half of the grid and regular intervals tolerance half a grid square Allow smooth curve or dot to dot Ignore how anomalous point dealt with Reject straight line of best fit Reject if joined to (0,0)	**4**

Question	Acceptable answers	Additional guidance	Mark
41(b)	Point at 60cm circled	Allow circled in table	**1**

Total for Question 41 = 5 Marks

Question	Acceptable answers	Additional guidance	Mark
42(a)(i)	(The mass of) magnesium		**1**

Question	Acceptable answers	Additional guidance	Mark
42(a)(ii)	(The mass of) magnesium oxide		**1**

Question	Acceptable answers	Additional guidance	Mark
42(b)(i)	greater the mass of magnesium the greater the mass of magnesium oxide	Accept the more magnesium the more magnesium oxide Accept mass of magnesium is proportional to mass of magnesium oxide Ignore positive correlation	**1**

Question	Acceptable answers	Additional guidance	Mark
42(b)(ii)	Magnesium 2.4 / magnesium oxide 1.6	Accept: the third one or middle one	**1**

Question	Acceptable answers	Additional guidance	Mark
42(c)	Repeat **(1)** And one of Using 2.4 g of magnesium / Using the mass of magnesium that gave the anomalous result To get values either side of the anomalous result To see if there are any other anomalies With same masses of magnesium (And) calculate an average **(1)**		**2**

Total for Question 42 = 6 Marks

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