Pearson Edexcel

Mark Scheme (Final)

October 2020

Pearson Edexcel International Award in Lower Secondary
In Science (LSC11/01)
Paper 1: 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.

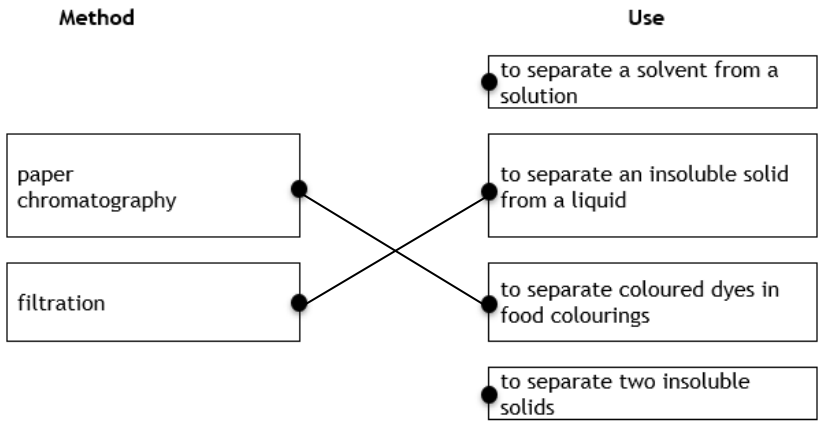
Question number	Answer	Mark
1	**The only correct answer is A air resistance** **B** is not correct because gravity is a non-contact force **C** is not correct because magnetism is a non-contact force **D** is not correct because static electricity is a non-contact force	**(1)**

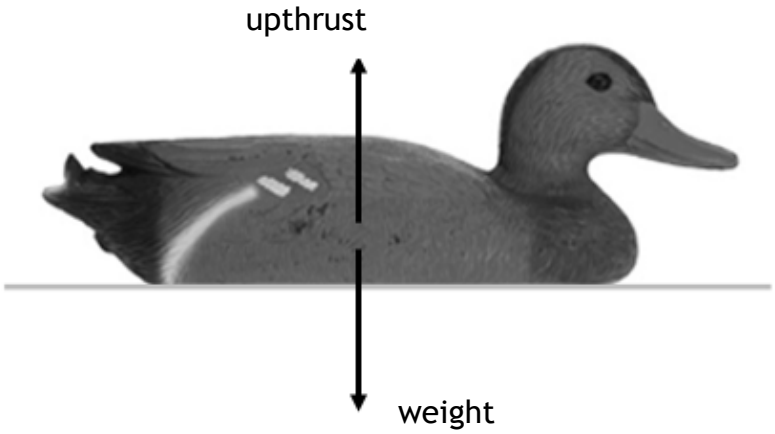
Question number	Answer	Mark
2	**The only correct answer is A hawk** **B** is not correct because lettuce is a producer **C** is not correct because the slug is not a tertiary consumer **D** is not correct because the thrush is not a tertiary consumer	**(1)**

Question number	Answer	Mark
3	**The only correct answer is C MDF** A is not correct because magnesium oxide is a compound B is not correct because porcelain is a ceramic material D is not correct because PVC is a polymer	**(1)**

Question number	Answer	Mark
4	**The only correct answer is B electrons** A is not correct because atoms do not flow as an electric current C is not correct because protons do not flow as an electric current D is not correct because neutrons do not flow as an electric current	**(1)**

Question number	Answer	Mark
5	**The only correct answer is D** $^{4}_{2}He$ A is not correct because H is not the symbol for helium and helium has a mass number of 4 B is not correct because H is not the symbol for helium C is not correct because helium has a mass number of 4	**(1)**

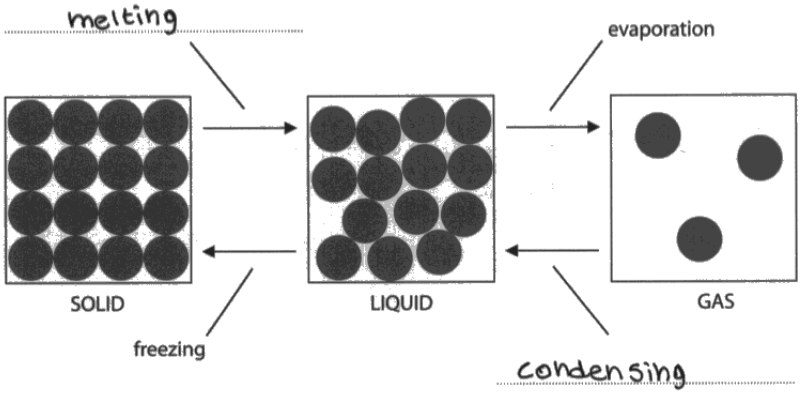
Question number	Answer	Mark
6	Award one mark for each correct line up to a maximum of two marks.  If more than one line from / to a box then neither line scores.	**(2)**

Question number	Answer	Mark
7 (a) Upthrust to be one word	 The upwards force is called upthrust. The downwards force is called weight. Both answers required for the mark.	**(1)**

Question number	Answer	Additional Guidance	Mark
7 (b)	there is no resultant force on the duck. (1) because the weight is equal (and opposite) to the upthrust. OWTTE (1)	ACCEPT the forces (on the duck) are balanced	**(2)**

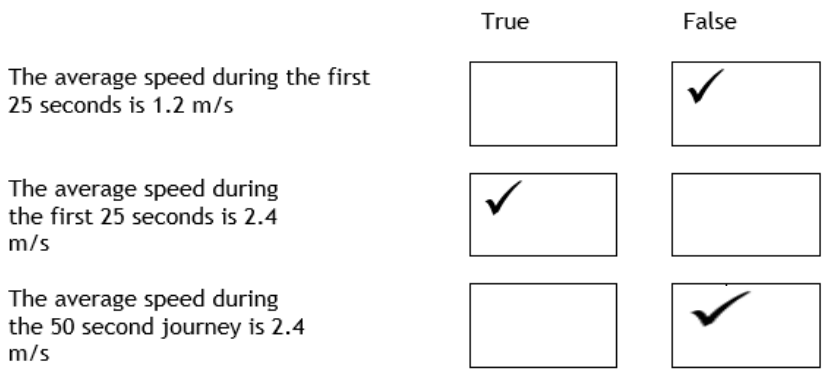
Question number	Answer	Mark
8 (a)	to carry oxygenated blood / to carry blood away from the heart	**(1)**

Question number	Answer	Additional guidance	Mark
8 (b)	Award one mark for any of the following up to a maximum of two marks: in a single circulatory system blood passes from the heart to the lungs before being pumped around the body (1) in a double circulatory system blood passes from the heart to the lungs and back (to the heart) before being pumped around the body (1) in a single circulatory system, the **heart** has 2 chambers but in a double circulatory system the heart has 4 chambers (1) Accept any other appropriate response.	Allow in a single circulatory system blood passes through the heart only once (per circuit) (1) Allow passes twice through the heart Allow a double circulatory system is more efficient for one mark	**(2)**

Question number	Answer	Mark
9 (a)	One mark for each correct label.  	**(2)**

Question number	Answer	Additional guidance	Mark
9 (b)	gas particles are (constantly) moving (randomly) (1) so, they hit/collide/bounce (with the inside of the balloon and exert a force) (1)	**ACCEPT** particles have kinetic energy **IGNORE** particles spread out	**(2)**

Question number	Answer	Additional guidance	Mark
10	Award one mark for any of the following up to a maximum of two marks: poor diet (1) lack of exercise (1) being overweight (1) Accept any other appropriate response.	**ACCEPT** examples of poor diet eg**.** high cholesterol/fatty diet, excessive alcohol high blood pressure, family history	**(2)**

Question number	Answer	Mark
11	 All 3 ticks in correct place for a mark.	**(1)**

Question number	Answer	Mark
12	**The only correct answer is B exothermic** A is not correct because an endothermic reaction does not give out heat C is not correct because reduction reactions can be exothermic or endothermic D is not correct because thermal decomposition requires heat	**(1)**

Question number	Answer	Mark
13	**The only correct answer is A large intestine** B is not correct because water is mainly absorbed in the large intestine C is not correct because water is mainly absorbed in the large intestine D is not correct because water is mainly absorbed in the large intestine	**(1)**

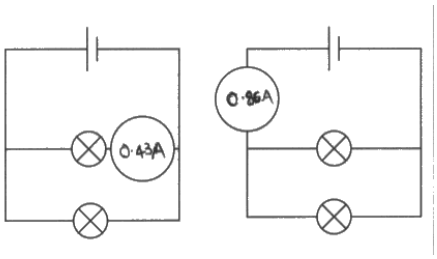
Question number	Answer	Mark
14	**The only correct answer is D** **A** is not correct because Hooke's law describes the relationship between extension and force **B** is not correct because Hooke's law describes the relationship between extension and force **C** is not correct because the graph does not show a directly proportional relationship	**(1)**

Question number	Answer	Mark
15	**The only correct answer is C mitochondria** A is not correct because the cell wall is not responsible for producing most of the cell's energy B is not correct because the cytoplasm is not responsible for producing most of the cell's energy D is not correct because the nucleus is not responsible for producing most of the cell's energy	**(1)**

Question number	Answer	Mark
16	**The only correct answer is D 240 Ω** A is not correct because the resistance is 240Ω (12/0.05 = 240Ω) B is not correct because 12/0.05 = 240Ω C is not correct because 12/0.05 = *240Ω*	**(1)**

Question number	Answer	Mark
17 (a)	One mark for each correct tick. Do not award a mark if more than one box in a column is ticked. **Metals** / **Salt Solutions** copper: ☐ — aluminium nitrate: ☐ iron: ☐ — calcium nitrate: ☐ magnesium: ☐ — copper nitrate: ✓ zinc: ✓ — magnesium nitrate: ☐	**(2)**

Question number	Answer	Additional guidance	Mark
17 (b)	hydrogen	ALLOW correct formula **H_2** IGNORE **H**	**(1)**

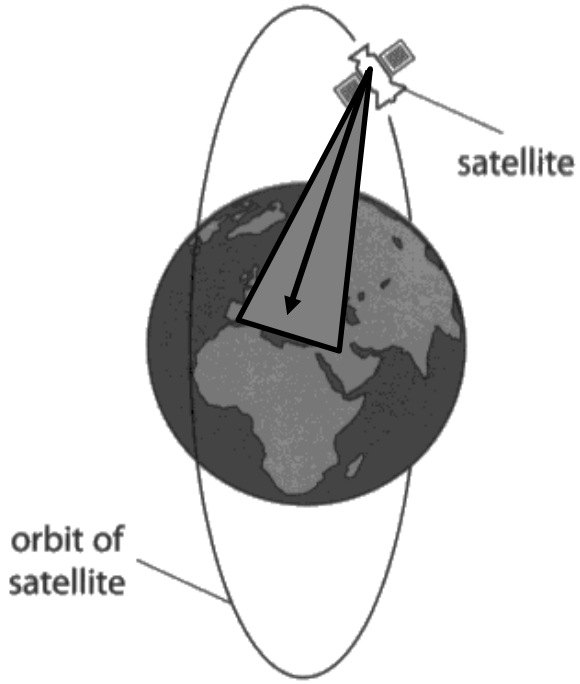
Question number	Answer	Mark
18	third one – 0.43 A 4th one – 0.86 A One mark for each correct. 	**(2)**

Question number	Answer	Additional guidance	Mark
19 (a)	Award one mark for each of the following: use anhydrous copper sulfate (1) turns (from white to) blue if contains water (1)	 ALLOW use of anhydrous cobalt chloride / cobalt chloride paper ALLOW turns (from blue to) pink if contains water	**(2)**

Question number	Answer	Additional guidance	Mark
19 (b)	carbon dioxide	ALLOW formula CO_2 IGNORE CO	**(1)**

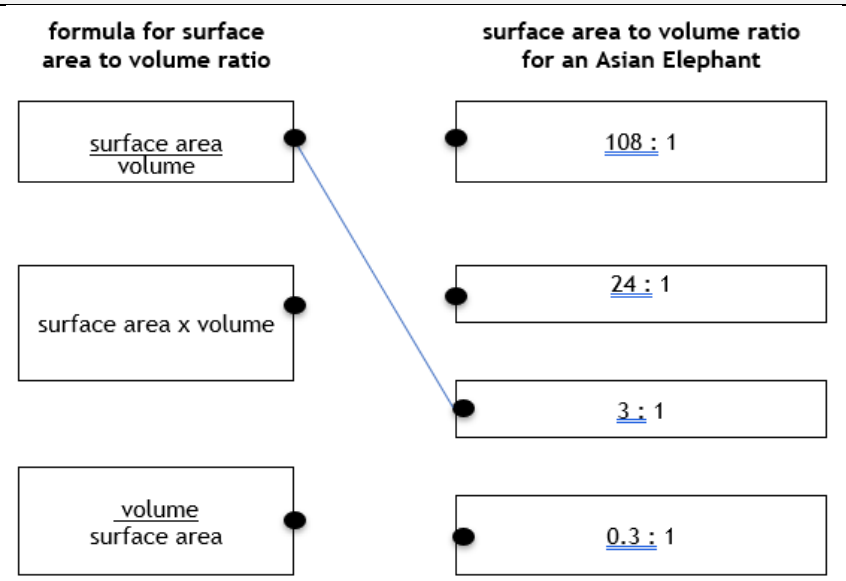
Question number	Answer	Mark
20 (a)	A bacteria that can cause a disease is an example of **pathogen**.	**(1)**

Question number	Answer	Mark
20 (b)	An obligate parasite that must inhabit a host cell to reproduce is a **virus**.	**(1)**

Question number	Answer	Mark
21 (a)	Arrow pointing from the satellite towards centre of the Earth. (Accept arrow within the bounds shown below but not a vertical arrow.)  	**(1)**

Question number	Answer	Mark
21 (b)	Award one mark for any of the following: weather monitoring (1) observation (1) spying (1) Accept any other appropriate response but not communication/TV/GPS/phone.	**(1)**

Question number	Answer	Mark
22	Award one mark for any of the following up to a maximum of two marks: car cannot grow (1) car cannot reproduce (1) cars do not evolve on their own (1) Accept any other appropriate response REJECT sense / respond to a stimulus	**(2)**

Question number	Answer	Mark
23	 Do not award mark if more than one line shown.	**(1)**

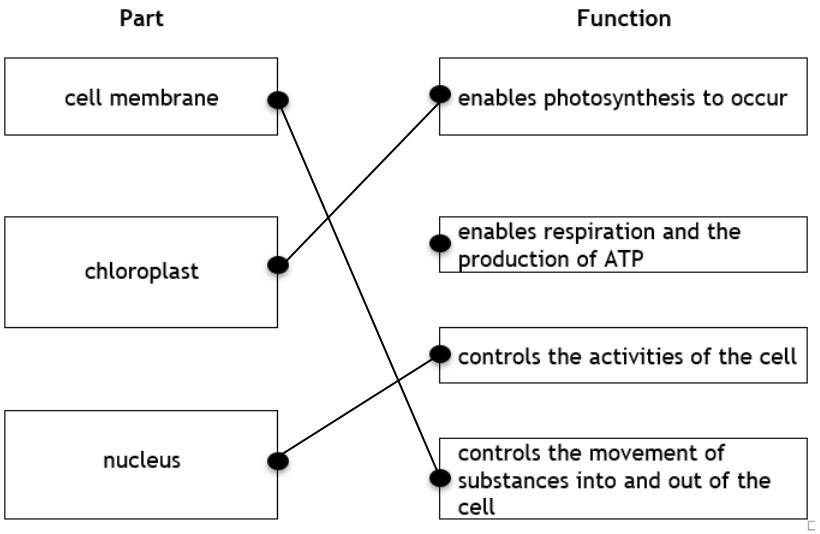
Question number	Answer	Mark
24	**The only correct answer is B a substance loses oxygen** **A** is not correct because a substance loses oxygen when it is reduced **C** is not correct because a substance loses mass during reduction **D** is not correct because a substance gains energy when reduced	**(1)**

Question number	Answer	Mark
25	**The only correct answer is D selective breeding** A is not correct because adaptation is a natural process B is not correct because fertilisation does not describe the whole selective breeding process C is not correct because selective breeding may not lead to population growth	**(1)**

Question number	Answer	Mark
26	**The only correct answer is C glucose → lactic acid** A is not correct because anaerobic respiration is not described B is not correct because anaerobic respiration is not described D is not correct because anaerobic respiration is not described	**(1)**

Question number	Answer	Mark
27	**The only correct answer is C 6.0 m/s** A is not correct because 0.021 is an incorrect conversion B is not correct because 0.36 is an incorrect conversion D is not correct because 21.6 is an incorrect conversion	**(1)**

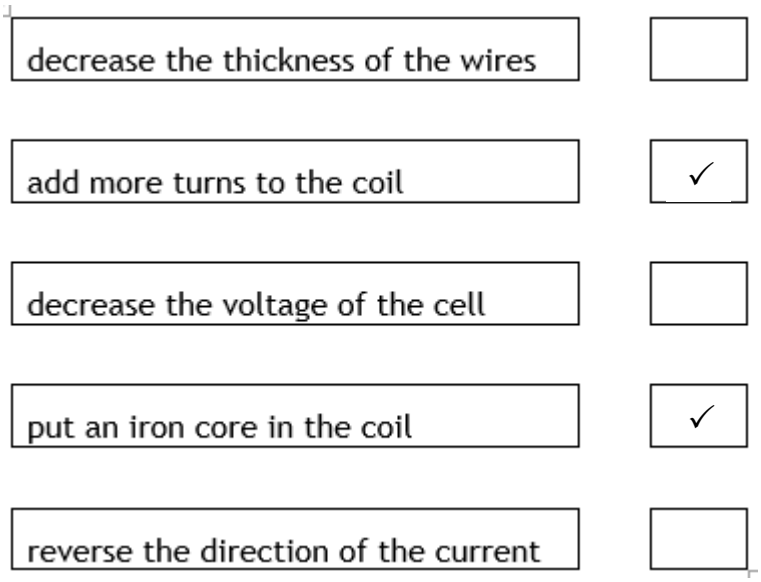
Question number	Answer	Mark
28	**The only correct answer is C Q and S** A is not correct because P and Q are in different groups B is not correct because Q and R are in different groups D is not correct because R and S are in the same period but not the same group	**(1)**

Question number	Answer	Mark
29	 All 3 correct gains 2 marks 2 correct gains 1 mark Do not award a mark if more than one line shown to/from a box.	**(2)**

Question number	Answer	Mark
30	315 000 (1) (accept 315kJ) J or Nm (1)	**(2)**

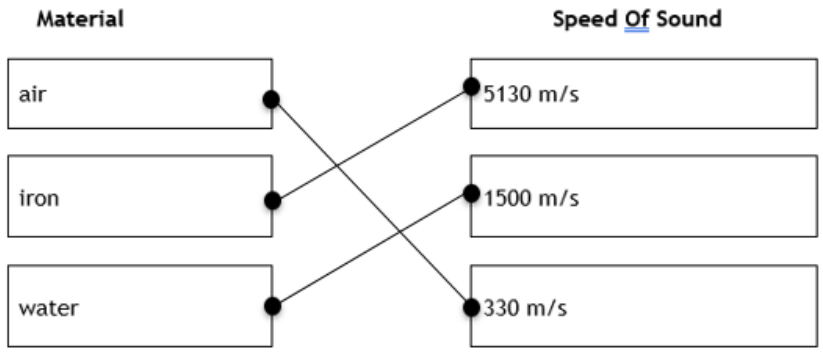
Question number	Answer	Mark
31 (a)	food / nutrients / space / territory / light / water / a mate	**(1)**

Question number	Answer	Mark
31 (b)	Award one mark for each of the following: Intra-specific (refers to competition for resources) between organisms of the same species (1) Inter-specific (refers to competition for resources) between organisms of different species (1)	**(2)**

Question number	Answer	Mark
32	 Both ticks needed for a mark. Do not give mark if more than two ticks shown.	**(1)**

Question number	Answer	Additional guidance	Mark
33 (a)	Award one mark for any one of the following: increase temperature (1) use smaller pieces of $CaCO_3$ (1) use more concentrated (hydrochloric) acid (1)	 Allow stir / agitate Allow increase surface area (of marble chips)	**(1)**

Question number	Answer	Mark
33 (b)	One mark for each correct answer. $\mathbf{CaCO_3} + \mathbf{2}HCl \rightarrow CaCl_2 + H_2O + CO_2$	**(2)**

Question number	Answer	Mark
34	 1 or 2 correct gains 1 mark 3 correct gains 2 marks Do not award mark if more than one line attached to a box.	**(2)**

Question number	Answer	Additional guidance	Mark
35	Rearrangement of equation: force = moment ÷ dist from pivot (1) substitution and evaluation: 25 ÷ 0.25 =100(N) (1)	Rearrangement can be in symbols, words or numbers Correct answer with no working scores (2)	**(2)**

Question number	Answer	Mark
36 (a) (i)	number of bulbs/lamps (in parallel)	**(1)**

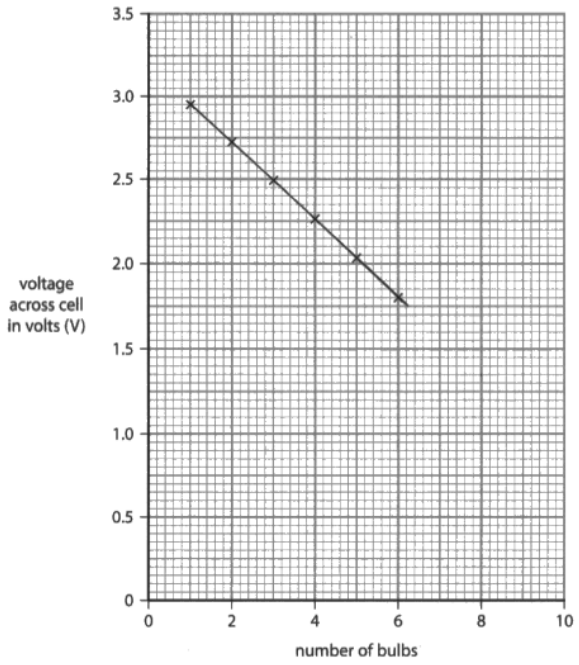
Question number	Answer	Mark
36 (a) (ii)	voltage (across the cell)	**(1)**

Question number	Answer	Mark
36 (b)	correct symbol for voltmeter (1) voltmeter drawn in parallel with cell (1)	**(2)**

Question number	Answer	Mark
36 (c) (i)	Taken repeats **and** worked out an average	**(1)**

Question number	Answer	Mark
36 (c) (ii)		**(1)**

Number of bulbs	Voltage across cell in volts (V)			
	Measurement 1	Measurement 2	Measurement 3	Average
1	2.96	2.95	2.95	2.95
2	2.73	2.72	2.72	2.72
3	2.50	2.49	2.48	2.49
4	2.27	2.25	2.26	2.26
5	2.80	2.03	2.03	2.03
6	1.80	1.78	1.82	1.80

Question number	Answer	Mark
36 (d) (i)	 straight line through points drawn with ruler	**(1)**

Question number	Answer	Mark
36 (d) (ii)	(1.7 V) does not fit the trend (1) because it does not lie on the line of best fit (1) OR voltage is more likely to be 1.34 V (1)_	**(2)**

Question number	Answer	Mark
37 (a)	D-C-**F-A-E-B** Two letters in the correct sequence, e.g. FA, AE or EB (1) All letters in the correct sequence (2)	**(2)**

Question number	Answer	Additional guidance	Mark
37 (b)	measuring cylinder	ALLOW burette/pipette	**(1)**

Question number	Answer	Mark
37 (c)	to allow the student to work out / calculate the energy produced per gram	**(1)**

Question number	Answer	Mark
37 (d)	Award one mark for any one of the following: wear goggles / eye protection (1) use heatproof mat (1) Accept any other appropriate response.	**(1)**

Question number	Answer	Additional guidance	Mark
38 (a)	Award one mark for any of the following up to a maximum of two marks: initially (up to 1g MgO) pH does not change much (1) pH changes rapidly between 1g and 1.5g of added MgO (from pH3 to 12) (1) pH does not change much when more than 1.5g MgO added. / pH does not increase above (about) 12(.4) (1) Accept any other appropriate response.	If no other marks awarded, then give 1 mark for either of the following: the solution becomes less acidic / more alkali(ne) with (increasing mass of magnesium oxide added) (1) OR the pH goes up and then levels off (1)	**(2)**

Question number	Answer	Additional guidance	Mark
38 (b)	evidence of graph/line of best fit used (1) answer in range 1.1g – 1.3g (1)	Correct answer within range without working scores (2)	**(2)**

Question number	Answer	Additional guidance	Mark
38 (c)	Award one mark for any one of the following: (measuring) volume of acid used (1) measuring the mass of the magnesium oxide (1) measuring the pH of the solution (1) Accept any other appropriate response.	ALLOW not stirring enough	**(1)**

Question number	Answer	Additional guidance	Mark
38 (d)	repeat the experiment using a different metal oxide	ACCEPT repeat using a named metal oxide	**(1)**