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Examiners' Report/ Principal Examiner Feedback

March 2010

GCSE

360Science

GCSE Science
Multiple Choice Paper C1a (5007)

GCSE Chemistry
Multiple Choice Paper C1a (5035)

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5007 Science/ 5035 Chemistry (C1a) Examiners' Report

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Foundation Tier

The test for chlorine was not well known, 33% of candidates thought that it turns limewater cloudy, 21% that it burns with a blue flame and 15% that it relights a glowing splint. 50% thought that chlorine is a colourless gas. 37% knew that downward delivery is used to collect gases that are more dense than air. 35% knew that baking powder contains sodium hydrogencarbonate and acidic substance with 39% thinking that the additional substance is alkaline. 36% knew that reactions that produce heat are exothermic with 38% thinking that they are thermal decomposition. 48% of candidates knew that rusting is a slow chemical change with 35% thinking that it is a slow physical change. Whilst 52% knew that iron is extracted from ore, 29% thought that it is extracted from steel . 24% of candidates knew that zinc can be extracted from zinc oxide by heating the zinc oxide with carbon, 33% thinking that carbon dioxide is used and 28% that the substance is oxygen. 37% knew aluminium has to be extracted by electrolysis because it is a reactive metal, 21% thought that the reason is that aluminium has a very high melting point, 21% that aluminium oxide is unstable when heated and 21% that aluminium oxide has a very high melting point. 44% knew that when magnesium reacts with water to produce magnesium oxide the magnesium is oxidised, 33% thought that the magnesium is hydrated. 27% knew that solutions of copper salts produce a blue precipitate with sodium hydroxide solution, 32% chose brown, 22% green and 18% white. 41% knew that potassium salts produce a lilac colour in a flame test with 21% choosing blue, 19% yellow and 18% red. 34% of candidates knew the order of reactivity of the metals lithium potassium and sodium. 26% could recognise the word equation for the reaction of lithium with water, with 62% thinking that oxygen is also involved as a reactant. When given the word equation for the reaction of lead oxide with carbon monoxide only 21% could recognise that the lead oxide undergoes reduction with 29% choosing thermal decomposition, 27% oxidation and 22% neutralisation.

Higher Tier

As would be expected higher tier candidates performed better than foundation candidates on questions 17 to 24 but some of the weaknesses indicated above were still present especially in questions 17 (50% correct), 18 (50% correct), 20 (46% correct), 22 (44% correct), 23 (44% correct) and question 24 (41% correct).
When told that an element contains 5 protons and 6 neutrons only 39% knew that the atomic number of the element is 5 with 41% choosing 11. In the reaction of copper oxide with warm dilute sulphuric acid to produce copper sulphate 44% of candidates knew that the liquid turns blue with 34% thinking that bubbles of gas are formed. In question 31, 25% could identify both statements as incorrect, 39% thought that a pure sample could be obtained from the reaction mixture by evaporation, not realising that excess copper oxide would be present. As usual balanced equations proved challenging with only 29% choosing the correct answer in question 32, 39% chose **B** showing the formula of hydrochloric acid as H_2Cl and copper chloride as CuCl. 34% of candidates could use the rule about names ending in –ate to identify KClO as a possible formula for potassium chlorate, 43% thought that the formula is KCl.

Knowledge of the preparation of soluble salts was weak with only 23% choosing to mix lead nitrate solution with dilute hydrochloric acid when preparing lead chloride, 39% chose to use lead oxide, 22% lead and 17% lead carbonate. 22% answered Q36 correctly, with 55% thinking that the compound with the formula $KHCO_3$ is potassium carbonate and 47% that the reaction represented by the equation is hydration. 43% could identify 'red-brown liquid' as a description of a halogen at room temperature, 25% chose 'purple gas' and 22% 'yellow-green liquid'. In question 38 the uses of sodium chloride were not well known, 36% answered correctly but 43% though that it is used as a fertiliser and 39% for bleaching paper. In question 39 about halogen displacement reactions, 42% chose the correct answer with almost random choice of the other answers. As with question 32 the equation in question 40 proved challenging with 30% getting the correct answer, 32% chose the option containing KCl_2 with I, and 30% KI_2.

Grade Boundaries – March 2010

Multiple Choice Papers – GCSE Science

Raw Mark Grade Boundaries

5005/5025	Max mark	A*	A	B	C	D	E	F	G
H	24	19	17	15	13	9	7		
F	24				16	13	10	8	6

5006/5026	Max mark	A*	A	B	C	D	E	F	G
H	24	18	16	14	12	9	7		
F	24				16	13	11	9	7

5007/5035	Max mark	A*	A	B	C	D	E	F	G
H	24	16	13	10	8	5	3		
F	24				16	13	10	8	6

5008/5036	Max mark	A*	A	B	C	D	E	F	G
H	24	18	15	12	10	6	4		
F	24				18	15	12	10	8

5009/5045	Max mark	A*	A	B	C	D	E	F	G
H	24	19	17	15	14	11	9		
F	24				19	16	14	12	10

5010/5046	Max mark	A*	A	B	C	D	E	F	G
H	24	18	16	14	12	8	6		
F	24				15	12	10	8	6

Uniform Mark Grade Boundaries for these units

	Max UMS	A*	A	B	C	D	E	F	G
H	40	36	32	28	24	20	18		
F	27				24	20	16	12	8

Note: On higher tier papers, the "allowed" grade E is calculated as half a grade width

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