

Mark Scheme (Results)

November 2012

360Science

GCSE Additional Science
Structured Paper C2 (5018H/1H)

GCSE Chemistry
Structured Paper C2 (5038H/1H)

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5018H/1H and 5038H/1H Mark Scheme – November 2012

Question Number	Answer	Allow	Reject/ Ignore	Mark
1(a)(i)	2.8.1 ;	Any separators eg 2,8,1		1

Question Number	Answer	Allow	Reject/ Ignore	Mark
1(a)(ii)	23 ;			1

Question Number	Answer	Allow	Reject/ Ignore	Mark
1(b)(i)	First mark: for electron being lost ; Second mark: (one) electron lost from outer shell / (one) electron lost leaving full outer shell ;	electrons being lost	Reject gaining electrons / sharing electrons	2

Question Number	Answer	Allow	Reject/ Ignore	Mark
1(b)(ii)	Na ⁺ ;			1

Question Number	Answer	Allow	Reject/ Ignore	Mark
1(c)(i)	it conducts electricity ;			1

Question Number	Answer	Allow	Reject/ Ignore	Mark
1(b)(ii)	$23 \times 2 + 32 + 16 \times 4$ (=142) ;	No working needed		1

Question Number	Answer	Allow	Reject/ Ignore	Mark
2(a)(i)	$\text{N}_2 + 3 \text{H}_2 \rightleftharpoons 2 \text{NH}_3$;			1

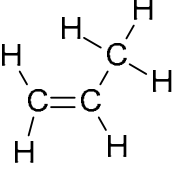
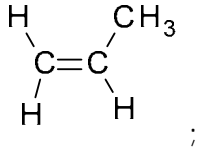
Question Number	Answer	Allow	Reject/ Ignore	Mark
2(a)(ii)	<p>Any two points (mark independently) from:</p> <ol style="list-style-type: none"> 1. (reaction) reversible / there are forward and back reactions (occurring) ; 2. (both reactions) occur at the same rate ; 3. the {amounts /concentrations of substances present } are unchanged ; 		Ignore 'reactions cancel out'	2

Question Number	Answer	Allow	Reject/ Ignore	Mark
2(a)(iii)	act as a catalyst / increase rate of reaction / {achieves equilibrium quicker / owtte} ;			1

Question Number	Answer	Allow	Reject/ Ignore	Mark
2(a)(iv)	weak forces (between molecules) / weak intermolecular forces ;	weak / little attraction between molecules	weak bonds / any reference to ionic or metallic bonding	1

Question Number	Answer	Allow	Reject/ Ignore	Mark
2(a)(v)	1. bonds broken require {heat / energy} / breaking bonds is endothermic / bonds formed release {heat / energy} / forming bonds is exothermic ; 2. more {heat / energy} released than required (in bond breaking and forming) ;			2

Question Number	Answer	Allow	Reject/ Ignore	Mark
2(b)(ii)	nitric acid ;	HNO ₃	Reject nitrate acid	1

Question Number	Answer	Allow	Reject/ Ignore	Mark
3(a)(i)	 ;	 ;		1

Question Number	Answer	Allow	Reject/ Ignore	Mark
3(a)(ii)	<p>>C=C< bond breaks / double bond { breaks / opens up } / OWTTE ;</p> <p>{ molecules / monomers } { bond / join / form chain / link } ;</p>			2

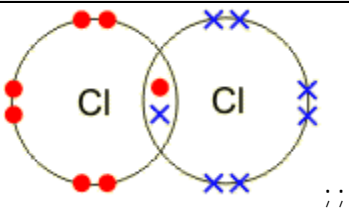
Question Number	Answer	Allow	Reject/ Ignore	Mark
3(b)	can be { reshaped / softened / melted } on heating / no cross links			1

Question Number	Answer	Allow	Reject/ Ignore	Mark
3(c)	<u>28</u> ; x 500 ; (= 304) (allow anything after dp) 46	Give 2 marks for 304 / 304.35		2

Question Number	Answer	Allow	Reject/ Ignore	Mark
3(d)	<u>720</u> x 100 ; (= 30%) 2400	working not required		1
Question Number	Answer	Allow	Reject/ Ignore	Mark

4(a)(i)	strong {covalent} bonds (between atoms) / large amounts of {energy / heat} required to break bonds ;		Ignore intermolecular forces / layers etc.	1
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Question Number	Answer	Allow	Reject/ Ignore	Mark
4(a)(ii)	<p>graphite</p> <ol style="list-style-type: none"> 1. {delocalised/free / sea of} electrons (between layers) ; 2. (which can) move / flow / eq ; <p>diamond</p> <ol style="list-style-type: none"> 1. no free electrons / all electrons involved in bonding ; 			3

Question Number	Answer	Allow	Reject/ Ignore	Mark
4(b)(i)	 <p>OR</p> <ol style="list-style-type: none"> 1. one shared pair of electrons (only) ; 2. rest of molecule ; 	<p>Dots, crosses, or both allowed in any combination as long as electrons correctly placed</p> <p>Circles not required</p>	Ignore symbols in centre of atoms	2

Question Number	Answer	Allow	Reject/ Ignore	Mark
4(b)(ii)	<p>First mark for correct division:</p> $\frac{0.48 \text{ (moles) carbon (atoms)}}{12} = 0.04$ <p style="margin-left: 150px;">$\frac{4.26 \text{ (moles) chlorine (atoms)}}{35.5} = 0.12$</p> <p>Second mark for answer above correctly converted into ratio and formula (allow ecf if division incorrect / inverted):</p> <p>simplest ratio 1 : 3 which gives formula of chloride CCl₃</p>	Cl ₃ C		2

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