



COMMON ENTRANCE EXAMINATION AT 13+

SCIENCE

CHEMISTRY

MARK SCHEME

This is a suggested, not a prescriptive, mark scheme.

Practice Paper 2008–2009

Q.	Answer	Mark	Additional Guidance
1. (a)	hydrogen	5	
(b)	anhydrous cobalt chloride		
(c)	hydrogen		
(d)	a mixture of elements and compounds		
(e)	iron oxide		
2. (a) (i)	copper sulphate	1	
(ii)	copper oxide	1	
(iii)	copper	1	
(b)	copper is a relatively unreactive element and does not react with water	1	
(c) (i)	add sulphuric acid to both copper compounds	1	accept any three valid points accept no visible reaction with copper oxide
(ii)	copper carbonate fizzes when acid is added carbon dioxide is formed copper oxide dissolves but no fizzing occurs	3	
3. (a)	a substance / compound which contains carbon and hydrogen only	2	
(b)	boils over a range / not just at one boiling point	1	
(c) (i)	carbon dioxide + water	1	vapour trails also formed by other effects but unlikely to be given here
(ii)	engine produces water condenses at high altitude / low temperature	2	
(iii)	limewater milky	2	
(iv)	greenhouse effect / global warming leading to climate change	2	
(d)	no oxygen / air in space to burn fuel	1	

Q.	Answer	Mark	Additional Guidance
4. (a)	fractionating column thermometer (Liebig) condenser conical flask	4	
(b)	fractional distillation	1	
(c)	10 molecules of A of a total 25 molecules is 40% or $10/25 \times 100 = 40\%$	2	
(d) (i)	a few molecules of A are still present	1	
(ii)	a further fractional distillation needs to be carried out	1	
5. (a)	<i>points all correctly plotted</i>	2	1 mark if four points correctly plotted
(b)	<i>the point at (1.60, 0.79) should be circled</i>	1	
(c)	the chip was not heated for long enough	1	
(d)	<i>a best fit straight line is drawn through the points</i>	1	
(e)	calcium oxide	1	
(f)	gas / carbon dioxide is formed / lost	1	
(g) (i)	the loss of gas means that the mass decreases	1	
(ii)	1.05 g $1.90 - 1.05 = 0.85 \text{ g}$	1	do not penalise consequential errors

Q.	Answer	Mark	Additional Guidance
6. (a) (i)	brown solid on surface	1	
(ii)	oxygen	1	
(b) (i)	oxygen was removed	1	
(ii)	<i>level should be at 78–80 cm³</i>	1	
(iii)	because 20–22% of air is oxygen	1	
(c)	it would go out	1	
(d)	copper is unreactive it does not react / corrode / no air used	2	
(e)	painting galvanising greasing	2	any two sensible suggestions
7. (a)	liquid	1	
(b)	<i>particles irregularly arranged</i> <i>particles touching</i>	2	
(c)	antimony oxide	1	
(d)	the mass increases oxygen is combining / joining with the antimony	2	
(e)	metal the oxide is alkaline	2	accept combination of high melting point and shiny appearance
Total		60	

