



Independent Schools
Examinations Board

COMMON ENTRANCE EXAMINATION AT 13+

SCIENCE

LEVEL 2




CHEMISTRY





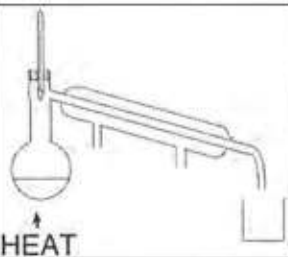
MARK SCHEME

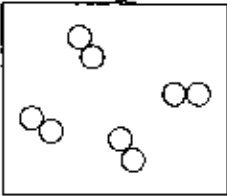
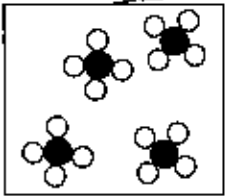
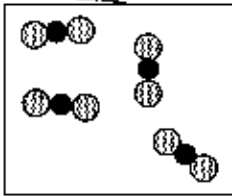
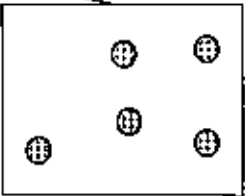
This is a suggested, not a prescriptive, mark scheme.

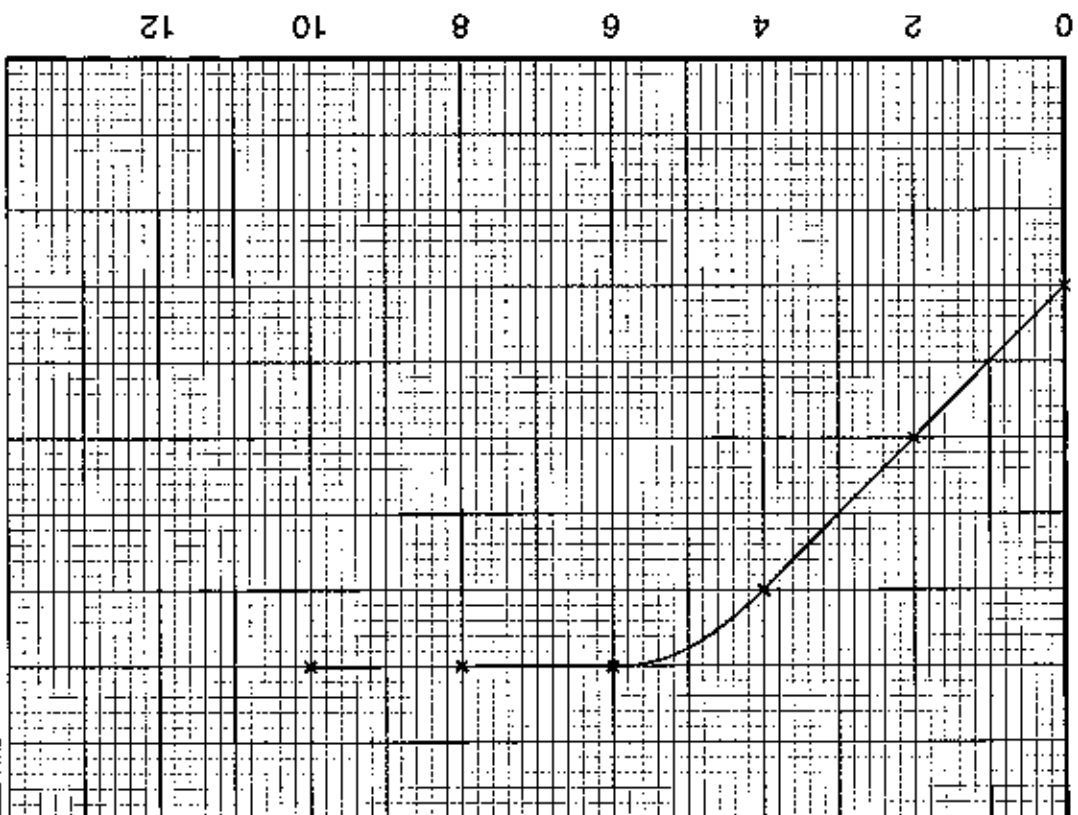
Tuesday 5 November 2013



Q.	Answer	Mark	Additional Guidance
1. (a) carbon dioxide (b) sulphur dioxide (c) carbon (d) sublime (e) 800 cm ³		1 1 1 1 1	
2.	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>saucepan bottom</p> </div> <div style="text-align: center;">  <p>water pipes</p> </div> <div style="text-align: center;">  <p>wire</p> </div> </div> <div style="display: flex; justify-content: space-around; margin-top: 20px;"> <div style="border: 1px solid black; padding: 5px; width: 20%;">shiny</div> <div style="border: 1px solid black; padding: 5px; width: 20%;">good conductor of heat</div> <div style="border: 1px solid black; padding: 5px; width: 20%;">good conductor of electricity</div> <div style="border: 1px solid black; padding: 5px; width: 20%;">unreactive</div> </div>	3	

Q.	Answer	Mark	Additional Guidance
3. (a)	<div data-bbox="272 206 625 485" style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">iron from a mixture of iron filings and sugar</div> <div data-bbox="272 508 625 746" style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">oil from a mixture of oil and water</div> <div data-bbox="272 773 625 1102" style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">sand from a mixture of sand and stones</div> <div data-bbox="272 1129 625 1279" style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">chalk from chalky water</div> <div data-bbox="272 1306 625 1562" style="border: 1px solid black; padding: 5px;">pure water from ink</div>	<div data-bbox="730 206 1036 485" style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"></div> <div data-bbox="730 508 1036 746" style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"></div> <div data-bbox="730 773 1036 1102" style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"></div> <div data-bbox="730 1129 1036 1279" style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"></div> <div data-bbox="730 1306 1036 1562" style="border: 1px solid black; padding: 5px;"></div>	<p style="text-align: center; margin-bottom: 20px;">4</p> <p>award 4 marks for all five correct</p> <p>3 marks for four correct</p> <p>2 marks for three correct</p> <p>1 mark for one/two correct</p>

Q.	Answer	Mark	Additional Guidance
4. (a) (i)	substance that cannot be broken down into anything simpler by chemical means/ contains only one type of atom	1	
(ii)	carbon, chlorine, hydrogen, oxygen	2	2 marks – four correct 1 mark – three or two correct
(b) (i)	two or more atoms joined together	1	
(ii)	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid black; padding: 5px; margin: 5px;">CO₂</div> <div style="border: 1px solid black; padding: 5px; margin: 5px;">Cl₂</div> <div style="border: 1px solid black; padding: 5px; margin: 5px;">He</div> <div style="border: 1px solid black; padding: 5px; margin: 5px;">CH₄</div> </div> <div style="display: flex; justify-content: space-around; align-items: center;">     </div>	3	award 3 marks for all four correct 2 marks for two/three correct 1 mark for one correct
(c)	movement: solid – vibrate; gas – free movement	1	
	arrangement: solid – regular/close together; gas – far apart/random	1	
5. (a) (i)	flame to be more wavy	1	
(ii)	yellow/orange	1	
(b)	easier to see	1	
(c)	less air/incomplete combustion	1	
	carbon formed instead of carbon dioxide	1	
(d) (i)	X just above inner cone	1	
(ii)	use pure oxygen	1	

Q.	Answer	Mark	Additional Guidance
6. (a) (i)	lead + magnesium oxide	1	
(ii)	no reaction	1	
(b)	below copper/at the bottom	1	
(c)	pink/brown/orange solid appearing blue colour of solution fading	1 1	
7. (a) (i)	the amount of sodium hydrogen carbonate added	1	
(ii)	pH	1	
(iii)	the volume of vinegar	1	credit any relevant point
(b) (i)		2	2 marks for six points accurately plotted
		1	1 mark for three/four/ five points accurately plotted 1 mark for line of best fit – must be a curve
(iii)			

Q.	Answer	Mark	Additional Guidance
(c) (i)	3	1	
(ii)	4cm ³	1	
(iii)	8	1	
(d) (i)	it is alkaline/it is an alkali	1	allow 'base'
(ii)	neutralisation	1	
8. (a)	chromatography	1	
(b)	yellow, red and blue	1	all three needed
(c)	blue and yellow mixed together	1	
(d)	3.5 cm/5 cm = 0.7	2	
(e)	other colour is blue	1	
	spots drawn level with the red and blue on the chromatogram	1	
(f) (i)	value unchanged	1	
(ii)	different value	1	
9. (a) (i)	water	1	
(ii)	salt (sodium chloride)	1	
(b) (i)	hydrogen	1	
(ii)	lit splint	1	carry forward credit if incorrect answer given to (b)(i)
	burns with a pop	1	
(c) (i)	same	1	
(ii)	more	1	
Total		60	