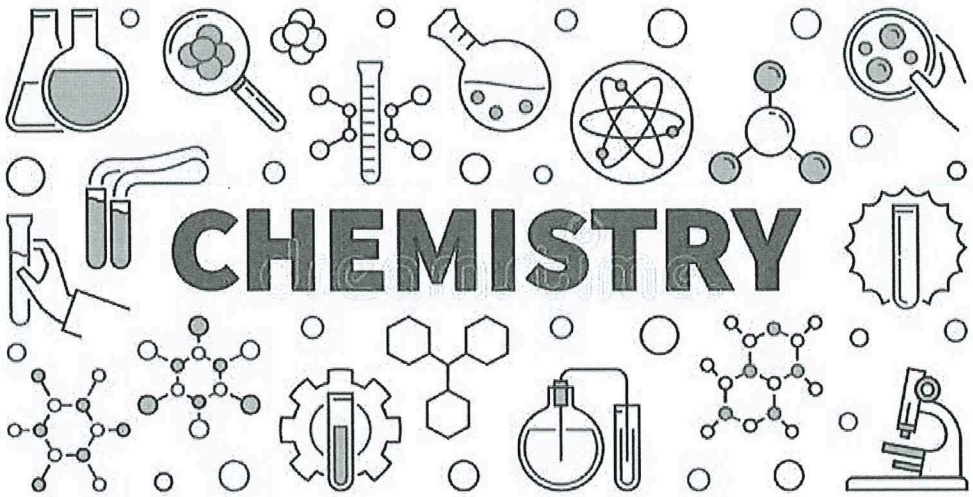


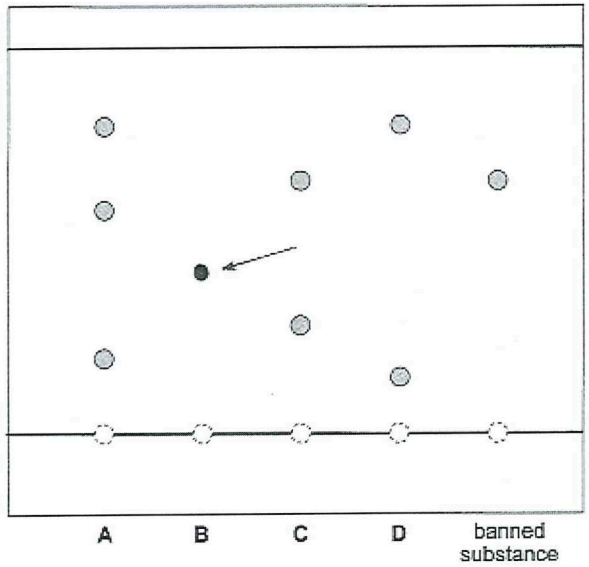
WJEC Chemistry 1

Option – Foundation Tier

1.1 Mark Scheme

Foundation Tier only questions

Question				Marking details	Marks available					
					AO1	AO2	AO3	Total	Maths	Prac
1	(a)	(i)		insoluble in water	1			1		1
		(ii)		alcohol and water have different boiling points ✓	1			1		1
		(iii)		evaporation / evaporating neutral answer: crystallisation / crystallising do not accept: boiling / distillation	1			1		1
	(b)	(i)		1 and 3 *either order*			1	1		1
		(ii)		2			1	1		1
		(iii)		0.5 (2) accept ½ award (1) for 4/8 if answer incorrect	1	1		2	2	
		(iv)		chromatography	1			1		
				Question 1 total	**5**	**1**	**2**	**8**	**2**	**5**

Question				Marking details	Marks available					
					AO1	AO2	AO3	Total	Maths	Prac
2	(a)			chromatography	1			1		1
	(b)	(i)		award (2) for 3 / 3.0 / 3.00 / 2.996 if incorrect award (1) for correct distance moved by solvent front i.e. 7 cm		2		2	2	2
		(ii)		 spot added 3 cm above start line ecf possible from part (i)			1	1		

Question				Marking details	Marks available					
					AO1	AO2	AO3	Total	Maths	Prac
	(c)			**C** (1) any of following for (1) • spot corresponds with that of banned substance • spot at 4.6 cm as it is for banned substance • dye has the same R_f value as the banned substance			2	2		2
				Question 2 total	**1**	**2**	**3**	**6**	**2**	**5**

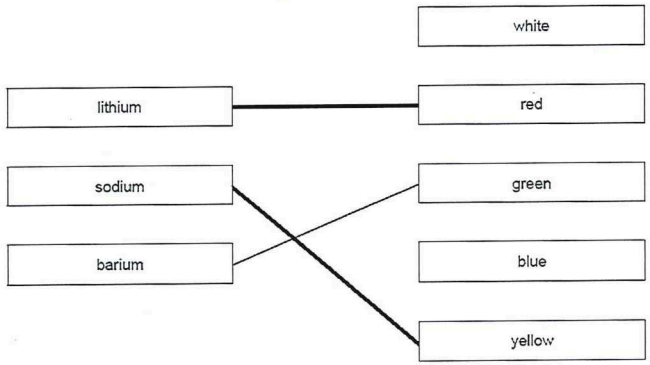
Question				Marking details	Marks available					
					AO1	AO2	AO3	Total	Maths	Prac
3	(a)	(i)		method **A** / distillation (1) water boils / evaporates (1) vapour condenses (1) award evaporation mark if method **C** given	2	1		3		3
		(ii)		8.6% (2) if incorrect allow (1) for 43 ÷ 500 / 0.086		2		2	2	
	(b)			cream / off white (1) yellow (1)	2			2		2
				Question 3 total	**4**	**3**	**0**	**7**	**2**	**5**

Question				Marking details	Marks available					
					AO1	AO2	AO3	Total	Maths	Prac
6	(a)	(i)		16 (2) award (1) for mean of 19 calculated from all three results		2		2	2	
		(ii)	I	calcium carbonate zinc carbonate copper carbonate all three in correct order (1) more stable carbonates takes more time to decompose (1)			2	2		2
			II	the more reactive the metal, the more stable the carbonate			1			
		(iii)		CuO (1) CO_2 (1)		2		2		
	(b)			123.5 (2) accept 124 award (1) for clear indication that formula includes one Cu, one C and three O atoms		2		2	2	
				Question 6 total	**0**	**6**	**3**	**9**	**4**	**2**

Question				Marking details	Marks available					
					AO1	AO2	AO3	Total	Maths	Prac
2	*(a)*	(i)		distillation	1			1		1
		(ii)		**C B A D**		1		1		1
		(iii)		the boiling point of ethanol is lower than the boiling point of water		1		1		1
	(b)	(i)		award (1) for either of following • contains two pigments / dyes • contains pigment **E** contains one unknown pigment (1)			2	2		2
		(ii)		0.84 (2) award (1) for $\frac{4.2}{5}$ ecf possible		2		2	2	2
				Question 2 total	**1**	**4**	**2**	**7**	**2**	**7**

Question				Marking details	Marks available					
					AO1	AO2	AO3	Total	Maths	Prac
3	*(a)*	(i)		**D** (1) contains only one **type** of atom (1)	2			2		
		(ii)		**A**		1		1		
		(iii)		C_2H_6		1		1		
	(b)	(i)		copper(II) sulfate + sodium hydroxide → copper(II) hydroxide + sodium sulfate		1		1		1
		(ii)		1		1		1	1	
		(iii)		5		1		1	1	
	(c)			$Fe(OH)_3$		1		1		
				Question 3 total	**2**	**6**	**0**	**8**	**2**	**1**

Foundation Tier only questions

<table>
<tr><th colspan="4" rowspan="2">Question</th><th rowspan="2">Marking details</th><th colspan="6">Marks available</th></tr>
<tr><th>AO1</th><th>AO2</th><th>AO3</th><th>Total</th><th>Maths</th><th>Prac</th></tr>
<tr><td>1</td><td>(a)</td><td>(i)</td><td></td><td>
<table>
<tr><th>Substance</th><th>Formula</th><th>Element</th><th>Compound</th></tr>
<tr><td>potassium hydroxide</td><td>KOH</td><td></td><td>✓</td></tr>
<tr><td>hydrogen</td><td>H_2</td><td>✓</td><td></td></tr>
</table>
award (1) for each correct tick</td><td></td><td>2</td><td></td><td>2</td><td></td><td></td></tr>
<tr><td></td><td></td><td>(ii)</td><td></td><td>fizzing (1)
potassium floats (1)</td><td>2</td><td></td><td></td><td>2</td><td></td><td>2</td></tr>
<tr><td></td><td>(b)</td><td></td><td></td><td>4
accept any method of identifying correct answer</td><td></td><td>1</td><td></td><td>1</td><td>1</td><td></td></tr>
<tr><td></td><td>(c)</td><td></td><td></td><td> 

award (1) for each correct line</td><td>2</td><td></td><td></td><td>2</td><td></td><td>2</td></tr>
<tr><td></td><td></td><td></td><td></td><td>Question 1 total</td><td>4</td><td>3</td><td>0</td><td>7</td><td>1</td><td>4</td></tr>
</table>

Question				Marking details	Marks available					
					AO1	AO2	AO3	Total	Maths	Prac
2	(a)			sulfur dioxide, SO_2 **B** (1) ethene, C_2H_4 **A** (1)		2		2		
	(b)			carbon dioxide neutral answer – CO_2		1		1		
				Question 2 total	**0**	**3**	**0**	**3**	**0**	**0**

Question				Marking details	Marks available					
					AO1	AO2	AO3	Total	Maths	Prac
10/2	(a)			**C** (1) award (1) for any of following $\frac{9}{15} = 0.6$ both **B** and **C** have R_f of 0.6 both **B** and **C** have a dot at 9 cm it is the highest dot (in **C**) (1)			3	3	1	3
	(b)			more soluble pigments move further up / more soluble pigments move faster (2) pigments have different solubilities (1) neutral answer – different R_f values	2			2		2
	(c)			**B** (1) award (1) for any of following one of its dot has not moved / is still on the line one of its dots has $R_f = 0$ pigment needs to be soluble to move up the paper			2	2		2
	(d)			62 (2) if incorrect award (1) for 36 or $\frac{12}{58}$		2		2	2	
				Question 10/2 total	**2**	**2**	**5**	**9**	**3**	**7**

Question				Marking details	Marks available					
					AO1	AO2	AO3	Total	Maths	Prac
1	(a)	(i)		distillation (1) chromatography (1)	2			2		2
		(ii)		**A** (1) **B** (1) **D** (1)		3		3		3
	(b)			The solid stays the same ☐ A gas is formed ✓ A temperature change occurs ✓ The mass of the beaker and contents stay the same ☐	2			2		2
				Question 1 total	**4**	**3**	**0**	**7**	**0**	**7**