

Mark scheme 5070/4 – Alternative to Practical November 2001

1	Syringe	1
2(a)	Blue	1
(b)	3.85 g	1
(c)	White	1
(d)(i)	2.50 g	1
(ii)	1.35 g	1
(e)(i)	160	1
(ii)	18	1
(f)(i)	0.0156	1
(ii)	0.075	1
(g)	$X = 4.81$ (1) $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$ (1)	2
3(a)	Water flowing wrong round condenser	1
(b)(i)	Fractionating tube	1
(ii)	To separate vapour, mixture	1
(i)	Condenser	1
(ii)	To convert vapour to liquid	1
(d)	Components are flammable	1
(e)(i)	80°C	1
(ii)	Benzene	1
(iii)	Temperature rises	1
4	(c)	1
5	(a)	1
6	(d)	1
7	(b)	1
8	(b)	1
9(a)	1.65 g	1
(b)(i)	Air oxidises Fe^{2+} ions to Fe^{3+} ions (1)	
(ii)	Hydrogen	1
(iii)	Pops in a flame	1

(c)	Colourless (or pale green) to purple (or pink)	1
(d)	$\begin{array}{r} 27.8 \\ 0.0 \\ \hline 27.8 \end{array} \quad \begin{array}{r} 32.1 \\ 5.7 \\ \hline 26.4 \end{array} \quad \begin{array}{r} 47.3 \\ 20.7 \\ \hline 26.6 \end{array}$	
	(1) mark for each row or column	3
	Mean value = 26.5 cm ³	1
(e)	0.000532	1
(f)	0.00266	1
(g)	0.0266	1
(h)	1.49 g	1
(i)	$\frac{1.49 \times 100}{1.65} = 90\%$	1
10	1 Colourless solution	1
	2 White ppt (1) Soluble in excess (1)	2
	3 White ppt (1) Soluble in excess (1)	2
	4 Aq. AgNO ₃ (1) Aq. HNO ₃ (1) White (1) ppt (1)	4
	ZnCl ₂ (1)	1
11(a)	80, 56, 39, 26	
	All correct	2
	Solubility expt 2 = 100, expt 4 = 50	
	both correct	1
(b)	Graph: all points correct	1
	Smooth curve through vertical axis	1
(c)(i)	35	1
(c)(ii)	142	1
(d)	60 °C	1
(e)	150g to 86g (1) = 64g (1)	2

[For parts (c), (d) and (e), mark as per candidate's graph]