

**2013 Secondary Three
Block Test 1 (Chemistry)**

Answers

Section A

1	B	6	B	11	C
2	C	7	D	12	D
3	D	8	D	13	C
4	B	9	D	14	A
5	D	10	C	15	D

Section B & C

No	Answers	Marks
B1		
(a)	E: CaCl_2	[2]
(b)	F: $(\text{NH}_4)_2\text{CO}_3$	[2]
(c)	G: CuI_2	[2]
(d)	H: $\text{Zn}(\text{NO}_3)_2$	[2]
B2		
(ai)	It means that 2H^+ ions are produced per acid molecule.	[1]
(aii)	NaHSO_4 and Na_2SO_4 .	[2]
(b)	His conclusion may not be correct because a concentrated solution of a weak acid may also give a low pH reading.	[2]
(c)	Add aqueous potassium iodide to the unknown solution. Lead(II) nitrate would produce a yellow precipitate in a colourless solution while aluminium nitrate would produce a colourless solution only.	[3]
B3		
(a)	Q and R	[1]
(b)	R	[1]
(c)	$\text{PO (s)} + 2\text{H}^+ \text{ (aq)} \rightarrow \text{P}^{2+} \text{ (aq)} + \text{H}_2\text{O (l)}$	[1]
C1		
(a)	dilute nitric acid, aqueous potassium hydroxide / potassium	[2]

No	Answers	Marks
(b)	$\text{H}^+ (\text{aq}) + \text{OH}^- (\text{aq}) \rightarrow \text{H}_2\text{O} (\text{l}) \quad \text{OR}$ $2\text{H}^+ (\text{aq}) + \text{CO}_3^{2-} (\text{aq}) \rightarrow \text{H}_2\text{O} (\text{l}) + \text{CO}_2(\text{g})$	[2]
(c)	No, potassium metal is too reactive.	[1]
(d)	Aqueous potassium hydroxide is titrated with dilute nitric acid with methyl orange as the indicator. The titration is repeated without an indicator using the volumes recorded from the first titration. The solution is heated to saturation and left to cool to obtain potassium nitrate crystals Filtration is carried out to obtain the crystals which are washed with distilled water and dried between pieces of filter paper.	[3]
(e)	The solubility of sodium chloride does not change much with temperature. Hence, cooling a saturated solution of sodium chloride will not produce crystals.	[2]