

Multiple Choice Answers

Q21: C

Multiple Choice Answers

Q20: B

Multiple Choice Answers

Q11: A

3(a)	M1 2H ₂ O M2 state symbols (aq) and (l)
3(b)	neutralisation
3(c)	$0.0100 \times 1000 \div 40 = 0.25(0)$
3(d)	burette
3(e)	M1 mol H ₂ SO ₄ needed = $0.0100 \div 2 = 0.005(00)$ M2 vol of H ₂ SO ₄ needed = $0.005(00) \div 0.200 \times 1000 = 25 \text{ (cm}^3\text{)}$
3(f)	M1 yellow M2 orange
3(g)	repeat steps 1 and 3 without indicator
3(h)(i)	M1 (a solution containing the) maximum concentration of a solute dissolved in the solvent M2 at a specified temperature
3(h)(ii)	solubility decreases as temperature decreases
3(h)(iii)	none

3(a)	$\rightarrow \text{BaSO}_4(\text{s}) + 2\text{NaCl}(\text{aq})$ M1 2NaCl (only) M2 (s) and (aq)
3(b)	M1 <i>M_r</i> BaCl ₂ = 208 M2 $208 \times 0.1 = 20.8$
3(c)	$0.100 \div 1.25 (\times 1000) = 80 \text{ (cm}^3\text{)}$
3(d)	white
3(e)	residue
3(f)	M1 rinsing the residue (with water) M2 (mass was greater) because (dry) residue contains solid sodium chloride / NaCl adds to the mass (of residue)
3(g)	precipitation
3(h)	M1 named soluble barium salt other than barium chloride e.g. (barium) nitrate M2 named soluble sulfate salt other than sodium sulphate e.g. potassium (sulfate) / ammonium (sulfate) M3 named insoluble barium salt other than barium sulfate e.g. (barium) carbonate

5(a)(i)	$\text{Pb}^{2+}(\text{aq}) + \text{SO}_4^{2-}(\text{aq}) \rightarrow \text{PbSO}_4(\text{s})$ M1 PbSO ₄ as the ONLY formula on the right M2 ONLY Pb ²⁺ and SO ₄ ²⁻ on the left M3 state symbols
5(a)(ii)	lead(II) nitrate
5(a)(iii)	sodium sulfate / potassium sulfate / ammonium sulfate
5(a)(iv)	residue
5(a)(v)	M1 wash with distilled water M2 suitable method of drying
5(b)(i)	<i>any two from:</i> - good conductor of electricity - soluble salts - basic oxides
5(b)(ii)	<i>any two from:</i> - variable oxidation states - coloured compounds - catalyst

Multiple Choice Answers

Q19: A

1(a)	14.6
1(b)	(least concentrated solution) potassium carbonate and (because) a larger volume of potassium carbonate was used
1(c)	(volumetric) pipette / burette
1(d)	M1 methyl orange
	M2 yellow to orange
1(e)	swirl / mix (the contents of the flask)
1(f)	M1 mix / add / combine together 25.0 cm ³ aqueous potassium carbonate and 14.6 cm ³ dilute sulfuric acid (without indicator)
	M2 (place in an evaporating basin) and warm until crystals start to form / warm until crystallising point / warm until saturated / half / most water gone
	M3 cool (solution) (so that crystals form) / leave solution from M2 so that crystals form

Multiple Choice Answers

Q24: C