

Question 1

1(a)(i)	circle around the OH group	1
1(a)(ii)	C=C bond	1
1(a)(iii)	C ₄ H ₈ O	1
1(a)(iv)	1 mark each for any two of: <ul style="list-style-type: none"> (when mixture is heated) water boils off first / water boils off before crotyl alcohol (because) water has a lower boiling point / crotyl alcohol has a higher boiling point water reaches the condenser first / water condenses first 	2

Question 2

2(d)(i)	filtration / filter	1
2(d)(ii)	1 mark each for any 2 of: <ul style="list-style-type: none"> evaporate to point of crystallisation / evaporate until saturated solution formed leave to crystallise filter off crystals / pick out crystals dry with filter paper 	2

Question 3

3(b)	filtration	1
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Question 4

4(a)	water evaporates / boils (but copper(II) sulfate does not) (1) water condenses / turns to liquid in condenser (1)	2
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Question 5

5(b)	1 mark each for any two of: <ul style="list-style-type: none"> evaporate to point of crystallisation / heat to point of crystallisation / evaporate some of the water and leave (1) filter crystals / pick out crystals (1) dry with filter paper / dry in drying oven 	2
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Question 6

6(f)	1 mark each for any two of: <ul style="list-style-type: none"> evaporate to point of crystallisation / heat to point of crystallisation / evaporate some of the water and leave (to crystallise) / heat to form a saturated solution (then leave) (1) filter crystals / pick out crystals (1) dry with filter paper / dry in <u>drying</u> oven 	2
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Question 7

7(d)(i)	lead(II) nitrate	1
7(d)(ii)	$\text{Pb}^{2+}(\text{aq}) + \text{SO}_4^{2-}(\text{aq}) \rightarrow \text{PbSO}_4(\text{s})$ M1 PbSO_4 on the right(1) M2 only Pb^{2+} and SO_4^{2-} on the left(1) M3 $(\text{aq}) + (\text{aq}) \rightarrow (\text{s})$ (1)	3
7(d)(iii)	M1 filter(1) M2 wash (the residue or lead sulfate) with distilled or deionised water (1) M3 description of drying(1)	3

Question 8

8(b)	fractional distillation	2
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Question 9

9(b)(i)	no bubbles or no fizzing or no effervescence	1
9(b)(ii)	zinc / zinc oxide / zinc hydroxide	1
9(b)(iii)	(powder has) larger surface area OR lumps have smaller surface area (1) (powder has) more collisions per unit time / more collision frequency OR lumps have fewer collisions per unit time / less collision frequency (1)	2
9(b)(iv)	crystals (form on glass rod or microscope slide)	1
9(b)(v)	ZnSO_4	1