



Question number	Answer	Notes	Marks
1 (a)	B (condensation)		1
(b)	<p>M1 (the particles/they) lose (kinetic) energy / have less energy</p> <p>M2 (the particles/they) move closer together / pack more closely</p> <p>M3 (the particles/they) do not move as freely / move more slowly / move less randomly</p> <p>NB M1, M2 and M3 can be scored anywhere across the whole answer</p>	<p>ACCEPT lose potential/heat energy</p> <p>ACCEPT not as many gaps / smaller gaps REJECT refs to density</p> <p>ACCEPT molecules for particles</p> <p>REJECT atoms once only.</p>	3

Question number	Answer			Notes	Marks
2 a					3
	</				

Question number	Answer	Notes	Marks
1 a i	six circles separated from each other	Accept minimum of 4 complete circles Ignore size and shape of circles Ignore arrows and other symbols implying movement Ignore a pattern Reject any touching circles Reject circles joined by bonds No penalty for half-circles at edges of square	1
ii	B (They move randomly in the liquid state)		1
ii	D (melting)		1
i			
b i	B (condensing and evaporating)		1
ii	D ($N_2(l)$)		1
		Total 5 marks	



Question number	Answer	Notes	Marks
1 (a)	Diagram shows four circles well-spaced apart	accept minimum of 3 complete circles ignore size and shape of circles ignore arrows and other symbols implying movement ignore a pattern reject any touching circles reject circles joined by bonds no penalty for half-circles at edges of square	1
(b)	move freely/randomly	Accept fast OWTTE ignore references to vibrate	1
(c)	M1 – (average kinetic) energy of the particles increases M2 – <u>more</u> particles have enough energy to escape / particles can escape <u>more</u> easily OR <u>more</u> particles overcome the forces (of attraction) holding them together (in the liquid) OR the forces (of attraction) between the particles are overcome <u>more</u> often	accept particles move faster/more rapidly/more quickly allow the energy of the liquid increases accept particles escape <u>more</u> quickly accept molecules/atoms for particles for both M1 and M2 allow bonds for force of attraction	2
		Total 4 marks	



Question number	Answer	Accept	Reject	Marks
1 (a)	B – (filter) funnel		teat pipette/dropping pipette	1
	D – test tube/boiling tube			1
	E - pipette			1
	F - beaker			1
(b)	M1 - A			1
	M2 - E			1

(Total marks for Question 1 = 6 marks)

Question number			Answer	Notes	Marks
1	a	i	steam	Accept gas / vapour	1
		ii	ice	Accept solid	1
		iii	ice	Accept solid	1
	b	i	D (melting)		1
		ii	B (condensing)		1
	c		D (solid to gas)		1
	d	i	exothermic		1
		ii	$\text{H}_2\text{O}(\text{g}) \rightarrow \text{H}_2\text{O}(\text{l})$	Accept multiples and fractions	1

(Total for Question 1 = 8 marks)

Question number	Answer	Accept	Reject	Marks
2 (a)	X boiling Y condensing Z freezing			1 1 1
(b)	C The particles move freely.			1
(c) (i)	thermometer			1
(ii)	it/water boils at 100°C OR it/water boils below the melting point of (solid) Q / 140°C / boils before Q melts IGNORE evaporates	water does not get hotter than 100°C reverse argument		1
(iii)	to keep the liquid at an even/equal temperature (throughout) OR to avoid the <u>bottom</u> of the liquid from overheating/the <u>bottom</u> getting hotter than the rest of the liquid/to evenly distribute the heat/to avoid hot spots IGNORE references to increasing movement, etc of particles	OWTTE	words that imply constant temperature, eg steady	1
			Total	7

Question number	Answer	Notes	Marks
2 (a) (i)	element(s)		1
(ii)	compound		1
(iii)	mixture		1
(iv)	element		1
(b) (i)	solid		1
(ii)	gas		1

Total 6 marks

Question number	Answer	Notes	Marks
3 (a)	3		1
(b)	ammonia / NH_3 hydrogen chloride / HCl	Do not accept ammonium Do not accept hydrochloric acid Accept in either order. If name and formula given, both must be correct. Ignore state symbols, except HCl (aq)	1 1
(c)	ammonium chloride / NH_4Cl	Do not accept ammonia chloride. If name and formula given, both must be correct.	1
(d)	cross in box 2 (decomposition) cross in box 4 (neutralisation)		1 1

Total 6 marks