

3(a)	number of possible arrangements of particles and energy in a system		
3(b)(i)			
	process	ΔS is negative	ΔS is positive
	steam condensing into water	✓	
	solid KCl dissolving into water		✓
3(b)(ii)	M1: three numbers and correct multipliers used M2: correct signs and evaluation $\Delta S^\circ = (3 \times 203.0) + (223.1) - (2 \times 281.6) = (+)268.9 \text{ (J K}^{-1} \text{ mol}^{-1}\text{)}$		
3(c)(i)	positive AND gas produced / on the right OR less / no gas on left		
3(c)(ii)	M1 and M2: calculation of gradient from the graph for ΔS gradient = $(-)/140 / 900 = (-)0.1556$ $\Delta S^\circ = (-)0.1556 \times 1000$ = $(+)155.6 \pm 5 \text{ (J K}^{-1} \text{ mol}^{-1}\text{)}$ M3: $T = 1120 \pm 5 \text{ (K)}$ M4: $\Delta H^\circ = (+)172 \pm 10 \text{ (kJ mol}^{-1}\text{)}$		