

Question	Answers	Mark	Additional Comments/Guidance
04.1	Initial amount of A = 6.4×10^{-3} Equ $A = 6.4 \times 10^{-3} - 2x \therefore x = 1.25 \times 10^{-3}$ $B = 9.5 \times 10^{-3} - x = 8.25 \times 10^{-3}$ $C = 2.8 \times 10^{-2} + 3x = 0.0318$ $D = x = 1.25 \times 10^{-3}$	M1 M2 M3 M4 M5	If M1 wrong can score max 3 If incorrect x can score max 3 Allow 2 or more sig figs
04.2	$K_c = \frac{[C]^3[D]}{[A]^2[B]}$ Units = mol dm ⁻³	1 1	Penalise () but mark on in 4.2 & 4.3 If K_c wrong no mark for units
04.3 Can see 4.2	M1 for correct rearrangement $[A]^2 = \frac{[C]^3[D]}{K_c [B]}$ or $[A] = \sqrt{\frac{[C]^3[D]}{K_c [B]}}$ M2 for division of mol of B, C and D by correct volume $[A]^2 = \frac{[1.05/0.5]^3 [0.076/0.5]}{116 \times [0.21/0.5]}$ or 0.0289 or 0.0290 M3 for final answer: $[A] = \underline{0.17}$ (must be 2 sfs)	M1 M2 M3	If K_c wrong in 4.2 can score 1 for dividing by correct volume If K_c correct but incorrect rearrangement can score 1 for dividing by correct volume
04.4	(All) conc fall: (ignore dilution) Equm moves to side with more moles To oppose the decrease in conc	1 1 1	OR $K_c = \text{mole ratio} \times 1/V$ If vol increases, mole ratio must increase To keep K_c constant If only conc of A falls CE=0 If pressure falls CE=0
Total		13	