**12** One molecule of haemoglobin, Hb, can bind with four molecules of oxygen according to the equation shown.

$$Hb(aq) + 4O_2(aq) \rightleftharpoons Hb(O_2)_4(aq)$$

When the equilibrium concentration of $O_2$ is $7.6 \times 10^{-6}$ mol dm$^{-3}$, the equilibrium concentrations of Hb and $Hb(O_2)_4$ are equal.

What is the numerical value of $K_c$ for this equilibrium?

**A** $3.0 \times 10^{20}$ **B** $1.3 \times 10^{5}$ **C** $7.6 \times 10^{-6}$ **D** $3.3 \times 10^{-21}$