23. Referring to the solution of problem 19 part (b), we see that $r = \sqrt{2mK}/qB$ implies $K = (rqB)^2/2m \propto q^2 m^{-1}$. Thus,

(a) $K_\alpha = (q_\alpha/q_p)^2(m_p/m_\alpha)K_p = (2)^2(1/4)K_p = K_p = 1.0\,\text{MeV}$;

(b) $K_d = (q_d/q_p)^2(m_p/m_d)K_p = (1)^2(1/2)K_p = 1.0\,\text{MeV}/2 = 0.50\,\text{MeV}$.