Question 33177

When alpha-particle is accelerated by potential $U=20\,V$, it has energy $E=qU=2eU$ (the charge of alpha-particle is $q=2e$).

Since the energy of the alpha-particle is $E=h\nu=\frac{hc}{\lambda}$, obtain

$2eU=\frac{hc}{\lambda}\Rightarrow\lambda=\frac{hc}{2eU}=3.1\cdot10^{-8}m=31\,nm$.