AS-2012 Q10

An alpha particle emitted from a radioactive source has an energy of 4.0 MeV (an electron-volt or 1 eV is equal to 1.6×10^{-19} J). It loses its energy largely by ionising air molecules as it passes close by, until it loses most of its energy. If the ionisation energy of an air molecule is on average 34 eV and the alpha travels a distance of 7 cm in air, what is the average distance between ionised molecules that it leaves in its wake?

A. 6×10^{-8} m B. 6×10^{-7} m C. 6×10^{-5} m D. 6×10^{-4} m