1. What is impact parameter ? Write an expression for the impact parameter in terms of scattering angle of α-particle.
2. Find the impact parameter for scattering angle π/2 radian when initial energy of α-particle is 10MeV and Z is 79.
3. An α-particle having KE of 5.5MeV is found to retrace the path when deflected by the gold foil. Calculate the distance of closest approach(Z=79)
4. In a head on collision between an α-particle and a gold nucleus , the distance of closest approach is 39.5fm. Calculate the energy of α-particle.
5. In a Geiger-Marsden experiment what is the distance of closest approach to the nucleus of a 7.7MeV α-particle before it comes momentarily to rest and reverses its direction.
6. Obtain an expression for de Broglie wavelength from Bohr’s quantization principle
7. Write the expression for radius of orbit of hydrogen atom.
8. Calculate the radius of the third Bohr orbit of the hydrogen atom.
9. Write the expression for the speed of an electron in the nth orbit of hydrogen atom.
10. Find the speed of electron in a hydrogen atom in n=2 state.